

ENVIRONMENTAL EDUCATION



Dr. NASRIN

Scientific and technological developments have set mankind in disequilibrium with the environment. If a proper environmental consciousness is not developed, the collusion between the growth ethics and natural limits is bound to occur. The environmental education plays a significant role to make the people aware about the various problems of environment which are very dangerous to the lives of human beings. In India, we have less percentage of literacy among the people. One of the major section of illiterates constitutes adults (15 to 35 years), who do not have enough opportunities to know more about environment, to lead a richer and happy life in their own surroundings. Hence, it becomes very essential to impart them knowledge about environment. The author tried to include essential aspects of environmental education which are very helpful for them. Therefore, the author makes her mind to conduct the present study—which was undertaken for Ph.D. degree in Education.

This book titled *Environmental Education* constitutes of seven chapters.

Chapter one deals with conceptual and contextual part of environmental education and post literacy aspects for neoliterates under the adult education programme.

Chapter two deals with the review of literature of various studies undertaken in the field of environmental education, programme instruction in the learning arena for different age groups, and adult education programme particularly for neo-literates.

Chapter three is crucial and significant part of the book which describes development of post-literacy material, psychological characteristics of neo-literates, education of environment through post-literacy material for neo-literates and some of the important basic principles of programing.

Chapter fourth deals with the design and procedure of the study which constitutes two phases. The first phase comprises of

(continued on second flap)

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ENVIRONMENTAL EDUCATION

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CONTENTS

<i>Acknowledgement</i>	v
1. Introduction	1
Historical Background	
Adult Education Under the Five Year Plans	
Adult Education Programmes and Eighth Five Year Plan	
Implementation of Natural Adult Education Programme in Phased Programme	
National Literacy Mission	
Total Literacy Campaign (TLC)	
Post-Literacy Programme for Neo-Literates	
Need of Literature for Neo-Literates	
Role of Educational Technology in Adult Education Programme	
Programme Learning—Its Connotation	
Necessity of Environmental Education	
Justification of the Problem	
Statement of the Problem	
Definitions of the Terms	
Objectives of the Study	
Hypotheses of the Study	
Delimitation of the Study	
Content of the study	
Sample of the Study	
2. Survey of Related Literature	25
International Scenario	
Adult Education	
Environmental Education	

Educational Technology (Programme Learning)
Curriculum Development (Department of Literature)

National Scenario

Adult Education

Environmental Education

Educational Technology (Programme Learning)

Curriculum Development (Development of Literature)

3. Theoretical Framework

73

Development of Post-Literacy Material

Psychological Characteristics of Neo-Literates

Education of Environment through Post-Literacy
Material

Post-Literacy Material for Neo-Literates

Basic Principles of Programming

4. Design and Procedure of the Study

85

First Phase

(A) Preparation of the Programme

Selection of Research Areas

Identification of Objectives

Selection of Content

Defining Objectives in Behavioural terms

Construction a Test of Entering Behaviour

Construction a Test of Terminal Behaviour

(B) Writing the Programme

Second Phase

The Sample

Tools of the Study

Selection of Experimental Design

The Collection of Data

Scoring

Statistical Procedure

5. Analysis of Data

99

Research Area 'Food'

Unit 1 - Food and Health

Unit 2 - Balanced Diet

- Unit 3 - Healthy Cooking
- Unit 4 - Digestive System
- Unit 5 - Malnutrition
- Unit 6 - Vitamins
- Unit 7 - Meal Planning
- Unit 8 - Special Diet
- Unit 9 - Food Storage and Preservation

Research Area 'Water'

- Unit 1 - Drinking Water
- Unit 2 - Sources of Water
- Unit 3 - Water and House-Hold Activities
- Unit 5 - Hardness of Water
- Unit 6 - Water Pollution
- Unit 7 - Water Borne Diseases
- Unit 8 - Methods of Purification of Water
- Unit 9 - Storage of Water

6. Interpretation of Data

195

First Objectives

- Unit 1 - Food and Health
- Unit 2 - Balanced Diet
- Unit 3 - Healthy Cooking
- Unit 4 - Digestive System
- Unit 5 - Mal-Nutrition
- Unit 6 - Vitamins
- Unit 7 - Meal Planning
- Unit 8 - Special Diet
- Unit 9 - Food Storage and Preservation

Second Objective

- Unit 1 - Drinking Water
- Unit 2 - Sources of Water
- Unit 3 - Water and House-Hold Activities
- Unit 4 - Proper Drainage System
- Unit 5 - Hardness of Water
- Unit 6 - Water Pollution
- Unit 7 - Water Borne Diseases
- Unit 8 - Methods of Purification of Water
- Unit 9 - Storage of Water

Third Objective

- Sub-Objective No. 1
- Sub-Objective No. 2
- Sub-Objective No. 3
- Sub-Objective No. 4
- Sub-Objective No. 5
- Sub-Objective No. 6
- Sub-Objective No. 7
- Sub-Objective No. 8
- Sub-Objective No. 9

Fourth Objective

- Sub-Objective No. 1
- Sub-Objective No. 2
- Sub-Objective No. 3
- Sub-Objective No. 4
- Sub-Objective No. 5
- Sub-Objective No. 6
- Sub-Objective No. 7
- Sub-Objective No. 8
- Sub-Objective No. 9

7. Conclusions and Suggestions

219

When Neo-Literates of Group A were compared with Neo-Literate of Group B

When Neo-Literates Women of Group A were Compared with Neo-Literate Men of Group B

When Neo-Literate Men of Group A were Compared with Neo-Literate Women of Group B

When Neo-Literate Men of Group A were Compared with Neo-Literate Women of Group A

When Neo-Literate Men of Group B were Compard with Neo-Literate Women of Group B

When Neo-Literate Women of Group A were Compared with Neo-Literate men of Group B

When Neo-Literate men of Group A were
compard with Neo-Literate men of Group B

Implications

Suggestions

Suggestions for further Researches

Bibliography

227

Index

231

"No nation can leave its security of the police and the army to a large extent. National Security depends upon the education of citizens, their knowledge of affairs, their character and sense of discipline and their ability of participate effectively in security measures."

—*Kothari Commission*

Chapter 1

INTRODUCTION

Education is the basic need of life, it is means of primary enlarging horizon and enlightening the mind to enable the individual for the maintenance and improvement of the modern social system. To educate the common man to understand his rights and duties to enable him to lead a fuller and richer life, is the urgent and basic responsibility of democratic government.

The provision of free and compulsory education to all the children upto the age of fourteen years is a part of Directive Principles of the Constitution of India¹. Persistent efforts towards the achievement of this goal have been made since independence. Accordingly Adult Education Programme was introduced for the persons beyond the age of fourteen years.

Historical Background

Adult Education Movement in India has experienced many ups and downs. Literacy and post-literacy work for common man and woman was started during the last quarter of the 19th Century. It took the shape of a mass movement in 1937 after the installation of Congress ministries in the provinces. It was for the first time in the history of India that Adult Education became the responsibility of the government as a part of education system. Therefore, organised work in the field of Adult Education was taken in hand. The post-literacy work, however was a weak link in the chain. More than six per cent increase in the literacy figures during the decade 1931-41, however, seems to a great extent due to the mass literacy movement. After the resignation of the Congress Government in 1939, the movement came to an abrupt end and the fervour and enthusiasm for literacy education subsided. The growth rate of literacy came down to 0.57 per cent in the decade 1941-51². Before India came free, voluntary organisations took up the work for the promotion and expansion of adult education. The period 1937-42 was a bright

period for Adult Education. The remarkable increase of 70 per cent in the literacy figures in the decade 1931-41 was due to the effort in the field of Adult Education and several other educational forces and movements. During 1942-47 the movement dwindled with the decline of national morale but never again did it lose its respectability and there was a promise in the period that the advent of the national independence would also bring new life to the adult education movement. As a result of various attempts made in the country, 29 lakh adults were made literate during 1937-42, there were only 1.31 lakh centres, in which 15 lakhs adults were made literate, during 1942-47³.

Adult Education under Five Year Plans

Sustained efforts were made in Five Year Plans, to achieve the goal of literacy. The programme of adult education was included in First Five Year Plan (1951-56) on small scale. Establishment of Janta Colleges and National Fundamental Education Centre (1956) was an important step in Adult Education. The first formal attempt to set-up a full-fledged Department of Adult Education was made by the University of Delhi in 1950. Central Social Welfare Board was set-up under the Chairmanship of Shrimati Durga Bai Deshmukh. During the plan period 55 lakh adults were enrolled in literacy classes run by the State Educational Department and 12 lakh in the classes run by Development Departments, out of which 35 lakh were reported to have been literate⁴.

During Second Five Year Plan Period (1956-61), 1,62,000 literacy centres were opened. The position regarding other schemes of Social Education indicates the during the last year of the second plan (1960-61) there were 15,326 reading rooms, 41,211 youth clubs had 8,95,700 members, 18,487 mahila mandals had 2,63,800 members, 8,93,092 gram sahayak camps were held and 5,75,800 persons were trained. During the Second Plan, 216 condensed courses were started in 14 states and 3 union territories. The Ministry of Labour established the Central Board of Worker's Education and set-up Regional Workers' Education Centres in different regions of the country. It was in 1959, for the first time after independence that the idea of mass-movement for literacy was experimented in Satara district of Maharashtra under the name of 'Gram Shikshan Mohim'.

which won the UNESCO award for the year 1972. Over a million people were made literate during the Gram Shikshan Mohim. Total number of 40,53,530 adults were reported to have been literate during Second Five Year Plan Period⁵.

The Third Five Year Plan (1961-65)⁶, stated that the introduction of Panchayati Raj at the district and block levels and the important role assigned to village Panchayats render it imperative that in as short period as possible a substantial proportion of the adult population should become capable of reading and writing. Every effort should be made, it said, to raise the percentage of literacy to 60 by 1971, 80 by 1976 and to achieve cent per cent literacy in 20 years. The importance of follow-up work was also emphasised, and a sizeable amount was set apart for production of material for neo-literates and its distribution through a network of libraries at local level. At the end of the third plan, the need for a massive programme for literacy was felt and it was also realised that for adult education to be successfully implemented, a different administrative structure and more financial outlay was necessary.

The Fourth Five Year Plan (1969-74)⁷, proposed to launch a mass adult literacy movement. The Plan also suggested the setting up of a National Adult Education Board and corresponding State Boards. The Programme of functional literacy had covered about 30 lakh farmers during the Fourth Five Year Plan and about 50,000 attended the functional literacy classes every year.

The Fifth Five Year Plan (1974-79)⁸, clearly emphasised the need to develop and exploit fully the potentialities of Adult Education for economic and social development. The education strategy in the Fifth Plan was built on the assumption that formal and non-formal education should be correlated and integrated. It is proposed to integrate adult education with all development programmes where large masses are involved as producers or beneficiaries. The agencies concerned should be responsible for organising adult education programme for their clientele. They should be assisted by the Education Departments which will produce material suitable for neo-literates. Adult Education Programme was included in Minimum Need Programme in the Fifth Plan, and was listed at Point No. 16

of the 20-Point Programme, and is at present at point No. 10 of the New 20-Point Programme.

The Sixth Five Year Plan (1979-83)⁹ laid emphasis on minimum essential education to all citizens, irrespective of their age, sex and residence. Non-formal education for adults, particularly in the productive age group 15-35 years, would receive priority in the Sixth Plan, in view of its potential for immediate impact in raising the level of productivity in the economy.

It was Kothari Commission (1964-66) which for the first time thought it desirable to have some targets for the removal of illiteracy. The Commission expressed the view that 'with planned efforts it should be possible to raise the national percentage of literacy to 60 per cent by 1971 and 80 per cent in 1976¹⁰. It recommended that 'every possible effort should be made to eradicate illiteracy from the country as early as possible and that in no part of the country, however, backward should it take more than 20 years to do so'.

On October 2, 1978, one of the most ambitious Adult Education Programme was launched with the object of providing adult education to 100 million adults in the age-group of 15-35 years within five years. In this programme three components—Awareness, Functionality and Literacy—have been included to make literacy relevant to the learner's needs and aspirations. This programme is of ten months duration. A 'Mass Functional Literacy Programme' was launched on May 1, 1986, involving 2,00,000 National Social Service (NSS) students and 1,00,000 non-NSS students in the Universities. In this programme the student volunteers were expected to teach 2-5 adult illiterates each in the neighbourhood according to their convenience. Similar group of illiterate population covered through projects like each-one-teach-one by volunteers.

In May 1986 the Government of India announced its New Education Policy. It envisaged that adult education would be a means for reducing economic, social and gender disparities. The programme will lay emphasise on skill development, creation of awareness among the learners of the national goals, of development programmes and for liberation from oppression. It would be a phased time-bound programme, covering 40 million by 1990 and another

60 million by 1995. The past programmes had suffered due to excessive dependence on administrative structures and lack of involvement of the mass organisations, media and the educational institutions. This imbalance will be corrected, by involving mass organisations and the entire education system, all developments departments "will be expected to utilise the adult education programme for the furtherance of their objectives".

The document entitled 'Programme of Action', states¹¹ Eradication of illiteracy will be launched as a Technical and Societal". For planning and implementation of Adult Education programme at the state as well as national level, autonomous commission will be set-up headed by the Chief Minister and the Minister of Human Resource Development, respectively. The principal aim of the New National Programme of Adult Education including literacy, to the population in 15-35 age-group, which numbers about 100 million.

1.3 Adult Education Programme and Eighth Five Year Plan

The main focus of the Eighth Five Years Plan is on human development. Universalisation of elementary education, eradication of illiteracy in 15-35 age-group and vocationalisation of higher secondary education are the three priority objectives of the Eighth Plan. In regard to literacy "the emphasis would be on sustainability of literacy skills gained and on the achievement of goals of remediation, continuation and application of skills to actual living and working conditions". It is expected that about 11.08 crore illiterates in 15-35 age-group would have to be covered by the end of the Eighth Plan to achieve hundred per cent adult literacy. The Plan proposes to cover 80 per cent of the target through campaigns and the remaining through Mass Programme of Functional Literacy (MPFL). Nehru Yuvak Kendras and Rural Functional Literacy Programmes (RFLP's) in tribal and hilly and sparsely populated areas through the Plan has suggested the possibility of retaining the centre-based programme, in general it has not supported the continuation of the programme. Eight Plan also proposes that literacy programmes will be launched in districts/regions which are educationally backward or have low female literacy. By the close of the Eighth Plan, 345 districts¹³ including about two-thirds of all districts in the educationally backward states would be covered by

the Total Literacy (TLC) campaigns. The strategy for backward districts would be two-fold. First, a few blocks would be selected where the literacy campaign can achieve success within a reasonable period. The demonstration effect of the blocks would influence the backward blocks which, in course of time, could develop appropriate literacy programmes. Secondly, the voluntary base in educationally backward districts being somewhat weak, ways and means of identification, strengthening and expansion of the same would be evolved in consultation with the respective State Governments. It is also necessary to develop technical competence among voluntary agencies so that the partnership between the Government and the operating agencies becomes meaningful. Particular attention would be paid to the availability of a variety of quality materials in adequate quantity to the neo-literates. Reputed printing presses and publishers would be motivated to print gratis literacy materials, posters and charts. The content of adult education would also include inculcation of values like secularism, national integration, scientific temperament, small family norms, concern for environmental conservation, cultural appreciation and so on.

Implementation of National Adult Education Programme in Phased Programme

The Adult Education Programme is conducted in three stages :

- (i) Stage one is for illiterates to provide basic knowledge of three R's Reading, Writing, Arithmetic.
- (ii) Stage two is termed as post-literacy stage in which adult learners who have left formal school system before or after completing primary school are included.
- (iii) Stage three is designed to enable the neo-literates to make effective use of literacy and numeracy skills achieved and is devoted to the improvement of these skills through self-learning.

Out of these three stages of the programme the researcher intends to concentrate on stage three i.e., neo-literacy stage. The third stage is as important as other two stages. The number of neo-

literates is increasing each year and by the turn of the decade it is expected that there would be about 110 million neo-literates, who would have graduated in the Adult Education Programme. They form priority group and will need learning and reading material.

National Literacy Mission

In 1988, a big resolve to eradicate adult illiteracy in a time-bound manner was taken with the launching of National Literacy Mission on 5th May 1988. Since then the crusade against illiteracy has been mounted with great zeal and commitment. One specific feature of National Literacy Mission is that it seeks to involve scientific institutions/methods for removing the inadequacies of the earlier programmes. The goal of National Literacy Mission is to impart functional literacy to 80 million illiterates in 15-35 age-group by 1995¹⁴. The focus is on rural areas with a special concern for women and persons belonging to the scheduled castes/scheduled tribes.

After the launching of National Literacy Mission, there have been numerous significant developments. Some of these are :

1. Mass mobilization through country wide organisation of Bharat Gyan Vigyan, Jatha and Jathas in the 5 states of Assam, Bihar, Madhya Pradesh, Orissa and Uttar Pradesh by organisations of Gandhian and Sarvodaya workers.
2. Adaption of an area specific, time-bound result oriented approach to eradication of illiteracy using Total Literacy Campaigns as the major strategy of implementation in villages, blocks, districts and states.
3. Implementation of the programme largely through voluntary participation.
4. Introduction of new pedagogy for literacy known as the Improved Pace and Content of Learning (IPCL).
5. Developing a culture of partnership between administrative and voluntry bodies.

All these were aimed at creating a demand for literacy or, in other words, motivating and clientele group which is crucial for the success of any literacy endeavour.

The following table 1.1 shows the population and progress of literacy rate :

Table 1.1
Population and Literacy rate 1951-81 and 1991-2001
Projections

(Absolute figures in Millions)

<i>S.No.</i>	<i>Year</i>	<i>Population</i>	<i>Literates</i>	<i>Illiterates</i>	<i>Percentage Literacy</i>
(1)	(2)	(3)	(4)	(5)	(6)
1.	1951	356	60	301	16.1
2.	1961	445	106	333	24.1
3.	1971	548	161	387	29.4
4.	1981	683	244	439	36.2
5.	1991	840	378	462	45.0

Sources : Indian Journal of Adult Education, Indian Adult Education Association, Vol. 50, No. 2, April-June 1989, p. 26.

Total Literacy Campaign (TLCs)

After National Literacy Mission was established the most significant development was the launching of a mass campaign for total literacy in Ernakulam district of Kerala on January 26, 1989. 216 Total Literacy Campaign (TLC) projects have been approved involving 240 districts (either fully or partially) in the states of Andhra Pradesh, Bihar, Gujarat, Haryana, Himachal Pradesh, Karnataka, Maharashtra, Madhya Pradesh, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. Currently, approximately 31 million learners in the 9-45 age-group are learning with the help of about 4 million volunteers¹⁵. They are in different stages of learning but it is estimated that about 15 million of them have already acquired the threshold level of literacy and numeracy. Post-literacy and continuing education activities are being launched even as TLCs make significant progress in an area. The objective is to cover 345 districts during the Eighth Plan and make 100 million people¹⁶ functionally literate.

There are certain characteristic features of Total Literacy Campaigns. These campaigns are area specific, time bound, volunteer based, cost effective and outcome oriented. They are implemented through the district level literacy committees which are registered under the Societies Registration Act as independent and autonomous bodies. The leadership to this body is provided by the District Collector/Chief Secretary, Zila Parishad (District Council). The targets of the programmes emanate from the grass-roots level on the basis of a detailed door to door survey. Every learner enrolled in the campaign is expected to achieve certain predetermined and measurable levels of literacy and numeracy at the end of the campaign. The learner is placed at the focal point in the entire process which, through compact duration and continuous, ongoing evaluation, helps to heighten learners' motivation and improve the pace of learning. Though the Total Literacy Campaign (TLC) is meant to impart functional literacy, it also disseminates a 'basket' of other socially relevant messages such as universal enrolment and retention of children in Schools, immunisation propagation of small family norms, promotion of maternity and child care, women's equality and empowerment, peace and communal harmony etc.

Post-Literacy Programme for Neo-Literates

There are many adults who acquire literacy through adult education programme but fail to retain it as they do not find any opportunity to use it in their daily life. Such adult learners are called semi-literates and neo-literates. The provision of illiteracy classes might help illiterates adults, but it cannot prevent others from falling into the trap of illiteracy and ignorance. For that population of adult learners diversified programme of 'Post-literacy' and 'Follow-up Programme' was introduced. These programmes are therefore organised after the literacy drives are over. The main purpose of post-literacy programme is to help the neo-literates in order to raise the literacy level acquired to such an extent that learners become fully capable of applying acquired skills for improvement of their own conditions. Not only that post-literacy programmes are also helpful to sustain the learning interests of neo-literates. The establishment of Jan Shiksha Nilayam is the welcome step to organise post-literacy and continuing education programme on permanent basis for neo-literates in particular and all the people in general. It

should always be kept in mind that post-literacy and follow-up classes are needed in communities even before literacy classes or campaigns are started. This type of programme becomes a source of motivation to the neo-literates to never stop learning. This indeed opens the gate of life-long education. It is that magic lantern which will lighten a million lamps and remove all areas of darkness.

Need of Literature for Neo-Literates

Need for the literature for neo-literates was felt during the Second Five Year Plan (1956-61). The Ministry of Education developed a programme for production of literature, but the produced literature was not satisfactory, as given by Dutta, S.C. in his book 'History of Adult Education in India'. Literacy status of Neo-literates have also shown that due to lack of continuing support in sustaining literacy skills and for want of suitable climate and environment for developing reading habit, neo-literates tend to return to literacy stage after a short-time. They need constant supply of reading material in large quantities on all the topics that touch the life of the people including relationship of humanity with environment.

According to survey conducted in Thailand in 1969 it was found that 33 per cent of people who completed primary education relapsed into illiteracy for want of reading material. But in a parallel situation in 1983 when reading materials were supplied to primary school completers only 18.33 per cent reverted to illiteracy states. Similar is the experience of Burma, Philippines, Vietnam etc. The report of National Training Seminar for Training/General Associates of State Resource Centres, Bangalore, November 22-27, 1984, shows that the number of neo-literates is increasing each year and by the turn of the decade it is expected that there would be about 110 million neo-literates, who would have graduated in the Adult Education Programme¹⁷. They form priority group and will need learning and reading material. So, it is strongly felt suitable reading material for neo-literates should be made available in good quality without which the Adult Education Programme would suffer enormous loss in human efforts and financial, inputs. Therefore, the researcher intends to concentrate on neo-literacy stage of Adult Education Programme.

Role of Education Technology in Adult Education Programme

With the explosion in population and information, and creeping in of technology, tremendous changes have taken place in the field of education. Technology is that branch of advanced scientific knowledge which deals with industrial art, applied science, sophisticated engineering software and hardware, etc. and the application of that knowledge for practical ends in a particular field. The present century is rightly called 'The Technology Century' due to the influence of advancements in the fields of science and technology on the varied aspects of life, resulting its modernisation. It is the remarkable products of creative thinking and labour, and is becoming the main beneficiary of new discoveries in pure research, which greatly determines its development. As Anil Bordia says; "We are using the word 'technology' not in its literal sense of application of science, but application of a set of new techniques, new methods, new pedagogy, new ways of dealing with adult learning"¹⁸. The field of education has also been influenced by the increased use of science and technological advancements in the field of education is so great and profound that it has given rise to a new discipline called 'Educational Technology'. The concept of Educational Technology refers to the application of technological principles to the solution of practical educational problems on the one hand and to the development of electro-mechanical instruments for educational purposes on the other. It signifies a system or technological approach to the problems of education. Arthur Melton (1959) also observed that an educational technology is based on the assumption that the psychology of learning encompasses all forms of relatively permanent behavioural changes which result from experience, including of course, the experiences of the child in the school. Francis Mechner²⁰ (1965) believes that he can build in student a complex repertory of knowledge or behaviour by applying a few basic principles of learning psychology in addition to a little art and intuition. In this sense the educational technology is the application of the psychology of learning to practical teaching situations.

The input of science and technology and pedagogical research can greatly be applied to improve the quality of the literacy programmes. The National Policy on Education and the document entitled 'Programme of Action' clearly states that the science,

technology and modern research have not been applied to literacy programme in the past". The main objectives of introducing technology in Adult Education Programme in promoting a qualitative change in their living and working conditions. The National Literacy Mission is a technological Mission with a view to applying technology and scientific research for the improvement of Adult Education Programme in terms of physical environment, infrastructure, pedagogic, training and management.

As reported in 'Employment News' dated 11 June, 1988, there are at present 2.62 lakh Adult Education Centres in the country involving 80 lakhs persons per year. However the quality of training of functionaries was found to be poor. Mass-media does not provide enough support. Post-literacy programme and programmes of continuing education have not been very effective. Learners participation has been irregular and there have been considerable drop-outs who relapse to illiteracy. It was, therefore, decided that more effective programme of continuing education should be launched. It has been reported that teaching-learning material which are being supplied for or used in adult education centres are inadequate, irrelevant and poor in quality. Few studies on educational technology have been conducted in India, taking different dimensions of educational field. The findings of these studies are satisfactory. It is expected that educational technology will produce effective results in preparation of post-literacy material and will definitely strengthen the programme of Adult Education.

Programme Learning—Its Connotation

The first impact of present technology is the trend towards a mass instructional technology which is governed by machines and systems. The term 'Programmed Learning' is nevertheless more accurate as this is learner-oriented system with emphasis on the method by which material can be presented so as to be auto-instructional. The first use of term programmed instruction is associated with B.F. Skinner. On the basis of his extensive research on rats and pigeons developed a theory of learning called operant conditioning. By putting the principles of operant conditioning in teaching to human beings. He evolved a teaching-learning model which is popularly known as Programmed Instruction.

Programmed Instruction was introduced into education through psychology in a technical language and format and with hardware more suitable to the research laboratory than to school or home. The sole objective of programmed instruction is to improve the teaching-learning process with the use of educational technology. The first psychologist whose findings bear direct relevance to programming is E.L. Thorndike (1874-1949). He is well known for his "Law of Effect." The law states that learning which is accompanied by satisfaction on the part of the student is likely to be more permanent than learning which is accompanied by dissatisfaction. Successful actions are also more likely to be reported than those which bring displeasure or discomfort.

Five basic principles of programming are as follows :

- (i) The subject matter which is to be programmed is analysed thoroughly and divided into meaningful segment of information. One segment of information is presented at a time to the learner. This piece of information is called "frame".
- (ii) There is an immediate confirmation of the right answers or correction of the wrong answer.
- (iii) Programming provides active responding on the part of the learner. The learner remains busy and active when he/she works on a programme. Active responding on the part of the learner means involvement in the learning process.
- (iv) The learner proceeds at his own pace. This takes care of the fact, that different learners have different rates of learning.
- (v) Student testing is helpful for the teacher as well as for student. The teacher can assess the progress of his students. The teacher can find out the weakness of his programme and can modify the week portion of the programme. The student can also evaluate his performance on the programme.

Necessity of Environmental Education

In order to meet the demand of every day life and maintain mental equilibrium for the fulfilment of needs and wants of every citizen on earth, and for balance and harmony between humanity and environment, the areas of concern have been eradication of basic causes of poverty, hunger, illiteracy, pollution and domination.

Environmental Education envisages the environmental approach to education and more so a way of learning rather than a subject. It helps develop new knowledge, skills and values in a drive towards better quality of environment and higher quality of life. The goal of Environmental Education is to improve all ecological relationships including the relationship of humanity with nature, and people with their surrounding. Thus it may include conservation of energy and soil, protection of air, water and atmosphere from pollution, effective utilization of locally available resources, creation of conducive atmosphere for living through social and civic consciousness, and harnessing natural resources without any ecological imbalance.

The adult sees utility only in things that satisfy his aspirations and fit to his level of mental development, field of experiences and felt needs. Incentives may be in terms of resultant financial gain, social gain like enhanced prestiges or representation in social institutions, or fulfilment spiritual aspiration. There is a natural urge for empathy and ego-satisfaction. The occupation of an adult learner is an important fact to be considered through which an adult educator can enter into his psychological world. Instructional packages for the development of their ability to read and write, and communicate in terms of their day to day life activities interest them much. So it necessitates to plan environmental education programmes according to the interest, needs, attitudes, values, memorization ability, language skills, attitudes towards instructors, ways of looking at things and wide experience of the adult neo-literates.

The underlying principle of an environmental curriculum is "Education of the environment through the environment and for the environment"²¹. Here environment is used both as a means and as an end. In this process neo-literates can learn through investigation, and develops proper understanding of the environmental problems and healthy environmental attitudes so as to preserve, enrich and safe-guard environment. The guiding principle of environmental education is that it considers environment in totality-natural, man-made, ecological, political, economic. Technological, social, legislative, cultural and aesthetic. It is a life-long process that requires inter-disciplinary approach to active participation and solution of problems.

Justification of the Problem

A National Scenario is imperative to consider the major objectives of Environmental Education proposed for adult learners. A direct and continuing linkage between initial literacy instruction and post-literacy and continuing education should be provided to make the proper use of functional literacy and to give a shape to the dream of educated nation. In Indian context where more than 63 per cent of the population is illiterate, the urgency of environmental education for them is self-realised. Hence to give a shape to the dream of educated nation that emphasises an "Environmentally Literate Citizenry" and to provide mental nourishment to neo-literates, there is an urgent need of literature based on their bio-physical environment. These attempts themselves justify the present need of Environmental Education as well as urgency to provide appropriate adult literature and the mental nourishment to the neo-literates which will be tailor made according to their existing physical environment. Adult learners as individual and social group will acquire an awareness and sensitivity to the bio-physical environment i.e. individual's health hazards in his own physical environment. They will acquire such knowledge and skills with understanding that will help to solve the environmental problems and lead to effective use of all regional and local resources so as to maintain harmony in the environment. They will develop positive social values, strong feelings of concern for the immediate environment, and motivation for actively participating in its protection and improvement all leading to the development of an environmental ethics within. Attempts in the field of curriculum development and environmental education has been made in India. Generally these attempts are made at school level. Like school students, it is also essential to develop a well equipped curriculum for neo-literates, directly related to their life experiences. Bearing this in mind the researcher felt the need to develop post-literacy material for the neo-literates which will read and understand independently. These facts led the researcher to think and select a problem related to environmental education for investigation. The problem may formally be stated as :

Statement of the Problem

Development of Post-Literacy Material of Environmental Education for Neo-Literates through Programmed Text.

Definitions of the Terms

The following terms needs clarification for conducting the present investigation.

Post-Literacy Material

Post-literacy may be defined as :

Systematically organised learning opportunities for persons who have had access to basic education through either primary education, adult education or any other systems. All those materials and structures, which enable the newly literate adult to keep up, use and develop the knowledge, he has acquired and the abilities generated in him through literacy teaching.

Here the term post-literacy material means to develop literature for the neo-literates which they will read and understand independently.

Environmental Education

Different researches and agencies have defined the terms in different ways for their own purpose. Here the researcher has selected two definitions which imbibed the basic meaning of Environmental Education.

Sharma, R.C. (1981)²², has explained the term in following manner.

"Environmental Education is not an easy task, unlike other curriculum areas. It is universally accepted that environmental education should be interdisciplinary, drawing from biological, sociological, anthropological, economic, political and human resources."

Bandhu, D. (1981)²³, has explained the term in the following manner.

"Environmental Education is the process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relations among man and his bio-physical surroundings. Environmental education also entails practice in decision making and self-formulating a code of behaviour about issues concerning environmental quality".

In the present study the term environmental education means the bio-physical aspect of the environment, which includes bio-physical environment, diseases propagating through it, agents of diseases and health hazard.

Neo-Literates

Neo-literates are those adult-learners who have completed one year academic course at various education centres under the National Programme of Adult Education and who are able to read independently.

Programmed Text

Programmed text means :

"Arrangement of material to be learned in a series of small steps designed to lead a learner through self-instruction, from what he knows to the unknown of new and more complex knowledge and principles".²⁴

Objectives of the Study

The Objectives of the study were as follows :

1. To develop the post-literacy material for neo-literates in the area of 'Food' through Programmed Text.
2. To develop the post-literacy material for neo-literates in the area of 'Water' through Programmed Text.
3. To ascertain the effectiveness of the developed post-literacy material for neo-literates in the area of 'Food' taught through Programmed Text.

The objective No. 3 constitutes its nine sub-objectives as follows :

- (i) To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Food' and 'Health' taught through Simple Text and Programmed Text.
- (ii) To ascertain the effectiveness of the developed post-literacy material for neo-literates in Balanced Diet taught through Simple Text and programmed Text.

- (iii) To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Healthy Cooking' taught through Simple Text and Programmed Text.
 - (iv) To ascertain the effectiveness of developed post-literacy material for neo-literates in Digestive System taught through Simple Text and Programmed Text.
 - (v) To ascertain the effectiveness of the post-literacy material for neo-literates in 'Malnutrition taught through Simple Text and Programmed Text.
 - (vi) To ascertain the effectiveness of developed post-literacy material for neo-literates in 'Vitamins' taught through Simple Text and Programmed Text.
 - (vii) To ascertain the effectiveness of the post-literacy material developed for neo-literates in 'Meal-Planning' taught through Simple Text and Programmed Text.
 - (viii) To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Special Diet' taught through Simple Text and Programmed Text.
 - (ix) To ascertain the effectiveness of post-literacy material for neo-literates in 'Food' storage and Preservation' taught through Simple Text and Programmed Text.
4. To ascertain the effectiveness of post-literacy material for neo-literates in the area of 'Water' taught through Simple Text and Programmed Text.

The fourth objective also constitutes its nine sub-objectives as follow :

- (i) To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Drinking Water' taught through Simple Text and Programmed Text.
- (ii) To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Sources of Water' taught through Simple Text and Programmed Text.
- (iii) To ascertain the effectiveness of the post-literacy material for neo-literates in 'Water and House-Hold Activities' taught through Simple Text and Programmed Text.

- (iv) To ascertain the effectiveness of developed material for neo-literates in 'Proper Drainage System' taught through Simple Text and Programmed Text.
- (v) To ascertain the effectiveness of developed post-literacy material in 'Hardness of Water' taught through Simple Text and Programmed Text.
- (vi) To ascertain the effectiveness of developed post-literacy material for neo-literates of 'Water Pollution' taught through Simple Text and Programmed Text.
- (vii) To ascertain the effectiveness of developed post-literacy material for neo-literates in 'Water Borne Diseases' taught through Simple Text and Programmed Text.
- (viii) To ascertain the effectiveness of developed post-literacy material for neo-literates in 'Methods of Purification of Water' taught through Simple Text and Programmed Text.
- (ix) To ascertain the effectiveness of developed post-literacy material for neo-literates in 'Storage of Water' taught through Simple Text and Programmed Text.

Hypotheses of the Study

The main hypotheses related to research area 'Food' are as follows :

- (1) "There is no significant difference between the achievement score of neo-literates taught the topic 'Food and Health' through Simple Text and Programmed Text."
- (2) There is no significant difference between the achievement score of neo-literates taught the topic 'Balanced Diet' through Simple Text and Programmed Text.
- (3) There is no significant difference between the achievement score of neo-literates taught the topic 'Healthy cooking' through Simple Text and Programmed Text.
- (4) There is no significant difference between the achievement score of neo-literates taught the topic 'Digestive System' through Simple Text and Programmed Text.
- (5) There is no significant difference between the achievement score of neo-literates taught the topic 'Malnutrition' through Simple Text and Programmed Text.

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- (6) There is no significant difference between the achievement score of neo-literates taught the topic 'Vitamins' through Simple Text and Programmed Text.
- (7) There is no significant difference between the achievement score of neo-literates taught the topic 'Meal Planning' through Simple Text and Programmed Text.
- (8) There is no significant difference between the achievement score of neo-literates taught the topic 'Special Diets' through Simple Text and Programmed Text.
- (9) There is no significant difference between the achievement score of neo-literates taught the topic 'Food Storage and Preservation' through Simple Text and Programmed Text.

The main hypotheses related to research area 'Water' are as follows :

- (1) There is no significant difference between the achievement score of neo-literates taught the topic 'Drinking Water' through Simple Text and Programmed Text.
- (2) There is no significant difference between the achievement score of neo-literates taught the topic 'Sources of Water' through Simple Text and Programmed Text.
- (3) There is no significant difference between the achievement score of neo-literates taught the topic 'Water and Household activities' through Simple Text and Programmed Text.
- (4) There is no significant difference between the achievement score of neo-literates taught the topic 'Proper Drainage System' through Simple Text and Programmed Text.
- (5) There is no significant difference between the achievement score of neo-literates taught the topic 'Hardness of Water' through Simple Text and Programmed Text.
- (6) There is no significant difference between the achievement score of neo-literates taught the topic 'Water Borne Diseases' through Simple Text and Programmed Text.
- (7) There is no significant difference between the achievement score of neo-literates taught the topic 'Water Borne Diseases' through Simple Text and Programmed Text.

- (8) There is no significant difference between the achievement score of neo-literates taught the topic 'Methods of Purification of Water' through Simple Text and Programmed Text.
- (9) There is no significant difference between the achievement score of neo-literates taught the topic 'storage of water' through Simple Text and Programmed Text.

Delimitation of the Study

The study was delimited in term of content and sample.

Content of the Study

The term Environmental Education includes several aspects. It was very difficult to cover all the aspects so the researcher confined her study to bio-physical environment. For the selection of the topics the researcher consulted the list of topics proposed by the Directorate of Adult Education, Govt. of India in 1984 for the preparation of post-literacy material for neo-literates. (Appendix-1)

The Researcher selected 'Food' and 'Water' which is given in point No. 4.2 in the list of Directorate of Adult Education, New Delhi, for the preparation of post-literacy material.

Hence the study was confined to bio-physical environment which includes the following areas : Food and Water.

Sample of the Study

In order to evaluate the effectiveness of developed Post-literacy material a group of one hundred neo-literates was selected by Simple Random Sampling Method. 50 women and 50 men were selected for the sample. The sample was drawn from the adult education centre of Agra district where post-literacy programme is being implemented.

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Chapter-2

SURVEY OF RELATED LITERATURE

Literature is that mirror which reflects the past views and presents the future prospective. It is imprudent and wasteful to proceed any study without knowing what has gone before. The previous literature gives a guideline and develops insight into the problem. So an essential aspect of an investigation in the review of the related literature that is a general retrospective survey of previous writings pertaining to one's problem. In order to develop deep insight and to evaluate the methodological practices emerging out of researches, the researcher made a survey of the available literature and reviewed the studies already done in the fields of adult education, environmental education, educational technology and curriculum development.

Detailed description of International studies as well as National studies are as follows :-

International Scenario

- Adult Education
- Environmental Education
- Educational Technology
(Programme Learning)
- Curriculum Development
(Development of Literature)

National Scenario

- Adult Education
- Environmental Education
- Educational Technology
(Programme Learning)
- Curriculum Development
(Development of Literature)

INTERNATIONAL SCENARIO

Adult Education

In the study of Littenfeld S.P. (1984), Adult runners were chosen as a study population as they shared many structural similarities with adult self-directed learners. Interviews with 45 adult runners produced accounts indicating that they formed intentions only after a thorough testing of the environment and evaluation of information sources. A descriptive model which included cybernetic and cognitive elements was offered to depict respondents' accounts. An evolutionary approach to intentional structures was suggested and both theoretical and practical implications were discussed. Future research into self-directed learning must examine the conditions under which self-direction evolved rather than examine mere instances of such behaviour.

Arias - Godinez, B. (1984), performed a study on non-formal education through radio and the social reproduction, transformation of a rural community, in Veracruz, Mexico. The study sought to investigate :

- (i) How non-formal education programme are socially constructed, and
- (ii) The extent to which non-formal education programmes among illiterate adults in rural areas function to reproduce or transform existing inequalities in wealth and power.

The language of dilemmas (Berlak and Berlak, 1981, 1983) was used to clarify the relationship of the data to social, economic, political and educational issues, and the possibilities for transformation or reproduction in Teocelo and the nearby communities. Ethnographic data also indicated that literacy was not a pre-requisite for development. Changes at the individual level were observed to be dialectically related to efforts to transform society.

Mayfield, C. B (1984) in his study took a sample of 148 licensees out of a total of 296 who had taken at least one continuing educational seminar at the college between October 1979 and January 1984 completed the inquiry form, for a 50 per cent response rate. On the basis of the conclusions, it was recommended that :

1. The real estate continuing education programme at Los Angeles Southwest College be continued and improved.

2. Changes and modifications be introduced to strengthen the programme.
3. Separate course be developed for sales-persons and for brokers.

Tyler, E.C. (1984), conducted a study with the problem of selecting educational experiences which produce desired results. Open-ended, taped interviews were conducted with each subject. Findings indicated that incoming students made rationale decisions about how to link learning and strategy with goals and experience for the purpose of producing consequences related to their career development goals. Recommendations were aimed at increasing the rate and level of participation in adult education.

The purpose of the study done by Alexander, M.A.C. (1984) was to examine the effects of favourable and unfavourable attitudes toward, and the effect of prior knowledge about, a subject in relation to schemata formation in adults. Four of the Kenyon Scales were used to assess attitude towards physical activity, and a revised form of Snell's Soccer Achievement Test was used to determine prior knowledge about the game of Soccer. An analysis of the data led the investigator to conclude that a positive attitude towards physical activity and prior knowledge about the game of soccer facilitate Schemata formation regarding speed-ball among subjects.

Anderson, R.D. (1984), identified the needs assessment method used by Catholic adult educators. Surveys, including 14 needs assessment methods identified in the literature and community service and message programmes from 59 Dioceses, were mailed to 105 Diocesan offices. Responses indicated methods used, method's usefulness, and use by programme era. 81 surveys (7%) were returned. Interview of target population (mean ranking 3.2) was perceived as most useful. Conclusions were :

- (1) Review type methods were mostly used.
- (2) Inquiry type methods were most useful.
- (3) Programme planners used review type methods to conserve resources but used inquiry methods to identify instructional needs.
- (4) Directors rely heavily on personal feelings and observations.

In an another attempt, Frederick, J.J. (1984), identified the trends in and development of adult education programmes in a

nation-wide perspective. Data were gathered from a questionnaire that was sent to 368 museums with education departments. The following information was examined from each museum surveyed: type of programme, instructor, fees, location of programme, and the audience. The data indicated a high incidence of adult programming in museums, changes in the image of the museum towards adult learners, and a new awareness of the museum educator towards adult learner audiences. The results of this study showed that the efforts of museums to teach and inform adult learner audiences had developed constantly in magnitude and variety.

A case study on adult education for international development, studied by Armour, M. (1984), qualitative research methods were used. Data gathered through participant observation included documentation and interviews with staff, course lectures, participants evaluation of the project and research field notes completed the data which were examined to identify, describe, and analyse project decisions. Some of the study conclusions were that project recipients should participate in major project decision making. Project recipients cultures should form the basis of adult education projects for development. The skills of generalist educators as facilitators, process consultant, and administrators were important to the success of projects with highly technical content as well as those of a less technical nature.

The study done by Wilkinson, B. (1987), evaluated those courses in an endeavour to identify : (1) who the beneficiaries of Pathway were and what was gained from it. (2) the relevance of pathway to the future for (a) people who experienced the course, and the people who were unemployed now or likely to become so, and (b) to adult education. It was concluded that there would continue to be people with problems similar to those encountered by pathway students, that there could be a role for adult education in this context, that the perennial problems of funding and recruitment would have to be considered, and that offering courses did not ensure that those who might most benefit would be attended.

Lakpah, M. U. (1987), focussed the adequacies as well as the inadequacies of the Lagos State Government's provisions for adult education with special reference to functional literacy, continuing and remedial education and vocational training. It was aimed at

acquainting the planners and executors of adult education in the State with the magnitude of the assignment appointed to them at State level in the execution of adult education as contained in the 'National Policy on Education' Section 7, paragraph 52 (a-e) and as suggested by the 'implementation committee for the National Policy on Education' which were included in the introduction of the study.

Hake, B.J. (1987), investigated the development of adult education in the Netherlands. This investigation was intended as a study of the relationships between social movements and the development of adult education. The research was focussed upon the historical relationship between the patriot and democratic movements in the Netherlands and the development of adult education in the period from 1780-1813. The research had three closely related objectives. It was intended firstly explore the broad spectrum of the social, political, cultural and religious activities of adults which were characterized by deliberate, systematic and sustained efforts to communicate and learn knowledge, skills and sensitivities. Secondly, the research was intended to establish the historical relationships between these diverse manifestations of adult education and the major social movements in the period from 1780 to 1813. It was also intended, thirdly, to provide an analysis of the relationships between social movements and the development of adult education in terms of the broader pattern of political change in the Netherlands.

Handron, D.S. (1988), analysed the concept of media literacy and developed a source book for adult educators which contained techniques to promote critically reflective viewing of public affairs television. Findings evolving from the research included learners exhibiting :

- (i) an indiscriminate criticism and distrust of the media,
 - (ii) an inclination to use the media solely for entertainment, and
 - (iii) a tendency to limit their attentions to human interest material.
- Critique was provided for each of the media literacy techniques which resulted in restructuring them, and in developing additional criteria and learning tasks that could be used to stimulate critical discussions about public affairs programmes.

Jenkins, J. A. (1988), in his study analysed the concepts of adult education within a federal agency to identify the extent to which

adult education principles were evident, to describe knowledge of, attitudes toward, and experiences with adult education principles and issues surrounding the implementation of adult education principles and practices that occurred in this training programmes. The study found that key personnel were aware of the principles and practices of adult education and incorporated these to varying degrees into the training programme certain of the principles, namely respect of the learner, collaboration, experience and a participative environment were evident in all analytical categories.

Moore, J. R. (1988), performed a case study on principles of androgogy in collegiate. The purpose of this study was to examine the faculty development programme of a university department in order to (1) identify the extent to which the principles and practices of adult education In addition, were applied within the faculty development effort (2) to describe the knowledge of, attitudes toward, and experience with the principles and practices of adult education. (3) describe the problems and issues surrounding the implementation of adult education principles and practices that occurred in the particular setting, and (4) make recommendations concerning the use of principles and practices of andragogy within the contest of higher education faculty development. Findings indicated that the principles of learning for action and problem posing solving were not used at all. Principles used somewhat were self-direction and empowerment, use of learners' experience, and critical reflective thinking. Principles of climate of self-respect, collaborative mode, and participative environment were used often. According to the findings of the study, however, the collegiate workplace is not aware of the use of principles and practices, most instances of use were accidental. Further, findings concurred with the literature that such factors as the facilitation, methods of instruction and adults' commitments could facilitate or impede learning. The literature and findings of the study indicated that the collegiate workplace could be enhanced if concepts of adult-education were more fully implemented, recommendations were based on these findings.

Blackwood, C. C. (1988), finds empirical evidence to the argument that adult learning theory had a definite and specific place on the general learning theory continuum. This study sought to clarify the role of self-directedness as a personality construct in adult

education. In addition, it sought to solidify the role of hemisphericity as an important concept of adult learning. The study found positive correlation between high degrees of self directedness and left hemisphericity. It also found correlations between high scores in self-directedness and age, and left hemisphericity and age. It was concluded that this study supports the notion that adult learning theory should be considered separately from childhood learning theory.

Pena, M.M. (1988), sought to define the potential contribution adult education could make to technological self-reliance in the particular case of Columbia. Educational issues relevant to technological self-reliance, including the role of adult education in linking research and production through technical extension services. It was found that resulting mismatches between applied research and social technology needs were interpreted as the expression of the prevailing pattern of social distribution of knowledge. This pattern could be challenged by innovative adult education activities aimed at democratizing access to knowledge and raising the scientific culture of the entire population. Both conditions were seen as essential to the consolidation of national efforts towards technological self-reliance.

Hocklander, N.C. (1988), divided his study into two studies, with study I seeking to identify which programme information items were of most importance to the prospective participant. The results indicated the programme information items of greatest importance to prospective programme participants were "general course content (purpose)", "Specific course content (objectives)", and "relevance of content to work situations". Differential relationships between characteristics of respondents and type of programme information were identified and discussed study II attempted, therefore, to ascertain what form, ranging on a continuum from practical to theoretical, a programme/brochure title should assume to appeal to the education preferences of health care administrators. The results suggested prospective programme participants (health care administrators) found programme titles with a "practical" content emphasis most appealing. Programme titles with a theoretical content emphasis were ranked as least appealing. Differential relationships between characteristic of respondents and programme titles were identified and discussed.

Peterson, N.L. (1988), examined the social context of an adult basic education (ABE) classroom in an adult learning centre. The aim was to articulate and apply a theory of social action and social structure. The conclusion was that, while adult basic education (ABE) classroom discourses and practices helped to reproduce inequality, some parts of persons and programs did not find satisfactory expression within those constraints. In that contradiction lay the potential for change.

Fitzpatrick, A. A. (1989), examined the extent to which current practice in health education/promotion programmes in academic nurse managed centres reflect the use of principles and practices of adult education in programmes design and implementation, and identify issues and problems surrounding the use of this setting. Major findings and conclusions supported the fact that adult education principles and practices were evident in health education/promotion programmes in academic nurse managed centres. The social and physical environment of the programmes were conducive for adult learning in all the programmes. All the educators and learners collaborated on the steps of programme development to some extent. The past and present experiences of the learners were shared in most of the programmes. The learners were encouraged to use problems posing and critical reflective thinking in some of the programmes. Different methods of teaching were used in many of the programmes to encourage a participatory environment. Empowerment and self directed learning were evident in some of the programmes.

Jones, J. M. (1989), investigated principles and instruction strategies fostering critical thinking in adult learners in North Carolina State University. The findings of his study were that the majority of extension Home Economists perceived the formulated principles of critical thinking to be important. However, they did recognize that their teaching aid not always foster the principles. Many respondents indicated that they had never used several of the instructional strategies for fostering critical thinking. A large percentage expressed interest in receiving information about training in, or practice with these instructional strategies. The findings indicated a significant relationship between degree of comfort in using each strategy and frequency of use.

Rich, R.Z. (1989) investigated the effects of teaching text comprehension strategies to adult poor readers. The implication of this study was that strategy training improves comprehension of adult poor readers. Teaching the summarizing strategy alone was not recommended. Self questioning was found preferable to summarizing and perhaps to both strategies combined since it took less time to taught learnt and applied than both strategies combined. Strategies should be presented through reciprocal teaching.

In the study of Bordenkircher, T. G. (1989), phenomenological interviews were conducted. Based on the result of this study, students who enrolled in a college adult basic education programme entered with a low self-esteem which made them vulnerable to persuasion. They made career decisions based on advice from a variety of people who often knew little about the student's individual needs. Programme recommendations included on site counselling, programme orientation, instruction that was sensitive to their individual academic and affective needs, and a physical environment which demonstrates a commitment to students.

Environmental Education

Cheng, H. W. (1988), investigated the impact of selected marketing on the process of food optimization and to employ response surface methodology (RSM) and conjoint analysis in analyzing the data. Significant treatment differences were found for five descriptive sensory attributes of raw products and ten of cooked products. Response surface contour plots demonstrated how changes in product variables influence the sensory characteristics of the products. For both raw and cooked restructured beef steaks, a low level of binder, low fat content, and small ground beef particle size had the highest consumer acceptance. In other words, the consumers liked ground beef patties better than restructured beef products.

Myrick, J. A. (1983) investigated the relationship between achievement for students and allergy inducing foods. The general purpose of the study was to determine if students exposed to allergy inducing elements have a lower level of academic achievement than students not exposed to allergy inducing elements. It was concluded that food allergies probably cause problems in achievement.

Roger, W. E. (1984), assessed possible effects of exercise on appetite and the post-exercise metabolic rate. It was found that exercise had limited effect on any of the measures of appetite. Analysis of the test model showed no statistically significant differences in the speed of eating on total calories. The results suggest that continuous exercise at moderate intensity had little effect on appetite in females apart from short-term suppression. Subsequent food intake fails to compensate for calories spent exercising. More intensive exercise may have a more pronounced short-term suppression effect, but, conversely, stimulates food intake in the 48 hours of exercise.

Fishman, P. B. (1984), investigated a means to integrate the promotion of ecologically sound food choices into nutrition education. The results of the study suggest that the subjects were in need of increased knowledge about food shopping and ecology, and that they need to develop skills in searching for foods.

Kyereme, S. S. (1984), studied food consumption and poverty patterns. The main objectives of the study were : (1) examining the impact of changes in household income and seasonality on food consumption; (2) measuring food poverty using a decomposable poverty measure, thereby determining the contribution of locational and socio-economic groups to total food poverty, (3) studying the trade-off between taste and nutrition. Results showed that the various analytical tools yield consistent conclusions. They suggest that food poverty is a serious problem, particularly in (1) the rural areas and the lean season. (February - July). (2) in households with many members, particularly children age (15 years), illiterate females, self-employed, unemployed or caretaker heads low incomes and assets, and poor food resource endowments. Results of the study suggest that, to combat food poverty and seasonal hunger, small scale farmers who account for over 90 per cent of domestic food production must be helped with public policies which increase their capacity to produce, process, store and market more food. Selective food assistance could then be given to the most needy and vulnerable people.

Pratoomsindh, W. (1984), investigated the extent of differences in the course outcomes associated with two instructional strategies for teaching food and nutrition to adults. The two instructional

strategies utilized were lecture-discussion and the combination method including lecture—discussion with the aid of slides, exhibits and testing of food products. Results of the research indicated that the group of students who experienced the combination method of instruction (Group II) had a higher mean gain between the pre-test and the post-test than the group experiencing the lecture-discussion method of instruction (Group I) Group II also had a significantly higher mean score on the "Participant Reaction to the subject and the "Instructional Strategies Scale". The result of the retention test revealed no statistically significant difference between the two groups. In order to bring about more effective food and nutrition education programmes, the use of a combination of instructional strategies is recommended. A comprehensive approach in food and nutrition education with integrated subject matter can result in heightening the effectiveness of each subject area.

Alkhunaizi, M. M. (1984), studied to measure the perceptions of students and school professionals toward the need for a school food service programme in the Eastern Province School District—Damman, Saudi Arabia. The major findings of the study were :

- (1) at least one-half of the students did not eat breakfast, before they come to school,
- (2) the majority of the students did not drink milk at school,
- (3) most schools had a snack bar but the food was considered not acceptable by most respondents, and
- (4) over 90 per cent of the respondents felt there was a need for a school food programme.

Maghenda, W. M. (1985) performed a study on education about environmental issues. To develop an environmental education framework for Kenya, base-line data was obtained from a survey of IV Secondary School students concern about environmental issues. A split half technique was used to establish the reliability of the questionnaire. The finding of the study clearly indicates that there were regional differences, gender differences, residential differences among Kenyan students regarding environmental Issues.

Murphy, C. P. (1985), conducted a study on the foodways of Indian Muslims living in the vicinity of Delhi, India. An examination of food studies as they relate to Indian-ethnography, revealed a

hiatus in the study of Indian Muslims. The structuring of meals and the handling of food were shown to link Indian Muslims to wider Indian culture, while simultaneously serving as important expressions of the Islamic worldview.

Hicks, B.V. (1986) analysed environmental perception and behaviour to identify planning and design considerations, survey information was organised into the following nine categories of variables : demographic, economic, agricultural economic, agricultural knowledge and behaviour, environmental perception, social and psycho-cultural. The main research issues focusses the inter-relationship of environmental quality perception and objectively measured environmental conditions and development of educational guide lines that incorporate the needs and perceptions of learners.

Libby, D. J. P. (1986), examined the relationships between self-concept and food and nutrition-related behaviour. It was found that scores on one of the factors, Super person (leader, self confident and aggressive) were negatively correlated with 5 of and 15 dietary components studied. Scores on the self-perception of a traditional orientation to life factor (help others and work hard) and the self-perception of being careful in other health areas factor were positively related to dietary patterns. Scores on the attitude that nutrition was important factor and nutrition knowledge also were positively related to food consumption and nutrient intake.

Chang, J. C. (1986) made a study on environmental pollution Control. Economic analyses of environmental pollution control for a project focussed on the costs and benefits of controlling pollution. The conclusion from the case study of project analyses and environmental pollution control for the expansion project of the shanghai aluminium plant indicated that :

- (i) The appropriate choice of technology transfer options between imported advanced technology and utilization of abundant labour will increase total factor productivity in China.
- (ii) A rational price system will ensure that prices reflect cost efficiency and socially beneficial production of profit and loss from investment in a project.
- (iii) Labour hiring flexibility will allow the enterprise to dismiss idle or negligent workers and link wages with labour productivity, and

- (iv) An incentive pollution control policy will encourage the industry to internalize pollution control costs or to consider possible cost reduction options.

Kay, N. W. (1986), investigated the health status and food behaviours among urban American Indian women. The research findings reveal that the traditional precontact diet was better nutritionally, change from the traditional, preservation diet to the present one had been heavily influenced by years of receiving "commodities" and had resulted in behavioural maladaptation to a refined carbohydrate diet.

Hill, P. M. (1986), examined the impact of the nutrition education component of the wake country WIC programme on nutrition behaviour change in the WIC participant. The focus of the evaluative research was the assessment of nutrition knowledge, attitudinal and food intake changes associated with a combined small group/individual instruction educational treatment. It was found that there was a significant nutrition knowledge change within the experimental group, and the comparison group demonstrated highly significant nutritional attitudinal changes as well as significant knowledge and milk intake changes. However, when the changes within the groups were compared, there was no significant difference except for milk intake in the comparison group. The socio-demographic variables of age, place of residence and race appeared to be significantly associated with nutrition behaviour change.

Educational Technology (Programme Learning)

Hulteen, C. and Crist, R. L. (1969) studied on the group use of programmed instructional materials, in Illinois State University. Students read a programmed text-book under two study conditions, projector and text-book. The result showed that the text-book mean was significantly greater than the projector mean. Time data clearly favoured the text-book condition.

Pikas, A., studied on comparisons between traditional and programmed learning. It was found that traditional teaching is superior to programmed learning in practical application, was confirmed regarding the teaching group where the students were given questions relating to practical application. The hypothesis that the superiority of traditional teaching in practical application would be more evident

in a test given after a lapse of time than in tests which are given immediately after a lapse of time than in tests which are given immediately after teaching and learning was confirmed regarding the active form of traditional teaching. The other traditional teaching group, where the students only listened to the teachers' presentation of the material, showed the same performance relations as the group which received programmed learning as regards the differences in time delay of the practical application.

Jamieson, G. H. (1969), studied on leaning by programmed and guided discovery methods at different age levels. A comparison was made between learning by programmed and guided discovery methods at four age levels. The results showed a significant positive correlation between the standardised arithmetic test scores and the binary criterion test scores obtained from both the experimental methods of learning, but the correlation was stronger for the programmed method. The youngest and the oldest groups learnt significantly better by the guided discovery method. The subjects tended to prefer the experimental methods of learning rather than the methods of learning to which they were accustomed.

Nable, G. (1969), studied on individual differences and intrinsic programmed instruction. The aim of the present study was to establish the relationships amongst a variety of individual differences while children were learning mathematics from intrinsic programmed instruction presented in teaching machines. The replicate design demonstrates that performance from programmed instruction is related more to organisational, social and administrative factors than to individual differences.

Berglund, G. W. (1969), studied on the effect of partial reinforcement in programmed instruction.

Results indicated :

- (1) no statistically significant difference in immediate or delayed criterion test scores among students subjected to various reinforcement conditions,
- (2) a negative linear relationship between the time spent on the programme and the percentage of confirmation provided, and
- (3) no evidence of differential effect among the various conditions on the subject's ratings of the degree of difficulty of the programme.

In Audio-Visual Aids and Programmed Learning Unit a study on comparisons between teaching methods at the postgraduate level done by Jamieson, G. H., James, P. E. Leytham, G. W. H. and Tozer, A. H. D., A comparison was made between learning from a programmed text, augmented (audio-visual) lectures, and straight lectures. The results showed significant differences in post-test teaching scores in the following order : first, programmed, second, augmented (audio-visual) lectures, third, straight lectures.

Curriculum Development (Development of Literature)

A study on development of a textile curriculum model for Nigerian higher education institution, of Kparevzua, B. A. (1983) was done to develop a University level textile curriculum model which is consistent with the current educational policies, and to increase the present fund of information about the methods, techniques, and the processes of textile production in Nigeria. It was concluded and recommended that curriculum specifications should serve as a basis for developing instructional materials.

Rafie, A (1984) worked on developing a high school vocational agriculture curriculum model for developing countries. It was found that curriculum planning, curriculum implementation and evaluation procedure as the three basic components of a high school vocational agriculture curriculum model are applicable with minor changes for developing countries.

Lue, Y. T. (1985) worked on developing a descriptive statistics curriculum unit for the junior college of commerce. This study was designed to develop teaching material for a new descriptive statistics unit for the mathematics curriculum of the first two years in the junior college of commerce or business high school in Taiwan. The pretest showed that Grade 11 students are prepared to learn more statistics. Generally speaking the students could learn the content of descriptive statistics provided in the experimental text, and they enjoyed the programme especially topics such as the stem-and-leaf display. The use of intriguing practical data and a guided discovery method appeared to motivate the students' learning. The post-test and examinations in the first semester of Grade 12 indicated that the students who studied descriptive statistics in Grade 11 understood

the Grade 12 unit on statistics better. A descriptive statistics unit appears appropriate for the Junior College of Commerce in Taiwan.

The study done by Quackenbush, D. R. (1985), involved the development process of a panel of experts and several small group of students (5-10) in the evaluation and revision of the text-lab manual. Results of the pilot implementation indicated that there was a significant difference at the .01 per cent confidence level between pre and post-test scores on the cognitive test for students using the investigator prepared instructional materials.

Long, B. B. (1985) attempted a study on curriculum development. This study was an historical case study which attempted to answer some questions about mathematics curriculum development and the forces which influence it. It was concluded that the most frequent influences on curriculum change in the mathematics department at the University were the professors perceptions of the student needs, requests and suggestions of other units of the University academic administrators and professors, in that order. Internal pressures influenced curriculum development much more than external pressures did. However, there was significant influence exerted by other departments. Several pressures which were cited in the literature did not seem to influence curriculum development in the mathematics department at the University. On the other hand, all the forces which were identified as pressures on curriculum development in the mathematics department at the University were cited in the literature. Thus, no additional stimulants of curricular revision and development were identified.

In 1986 Williams, J. conducted a study of curriculum development. The purpose of the study was to document, analyse and critique. On the basis of contributions from the literature and perceptions held by the professionals involved, the processes by which an appropriate curriculum was developed for the student body in a recently formed middle school. There was an expressed desire for more formal curricular work of an institutional and interdisciplinary nature consonant with the existing culture. The school was also found to exhibit a number of theoretical middle school principles. Although, neither the linear view of curriculum development, nor the full institutionalisation of formal structures were evident, the curriculum development in operation in the areas

studied was continuous, deliberate and conceptually coherent. It was concluded that perhaps there is a need for models that more accurately reflect practice.

NATIONAL SCENARIO

Adult Education

Mali, M. G. (1974), studied on factors affecting retention literacy among adult neo-literates. It was found that :

- The reading materials had a very high correlation with literacy retention,
- environmental factors had no influence on retention, and
- class-room factors needed to be stressed for retention.

Ali, Mohammad (1978) inquired into the objectives and functioning of the adult education scheme carried out at Gomat, Aligarh. The main purposes of the study were to look into the working of the adult education scheme as being carried out at gomat, one of the centres about 35 km. from the Aligarh Muslim University campus and to find out how far the adult education scheme has been successful in involving the masses to play an effective role in bringing about social change in community. The main results of the study were :

- (1) The centre did not achieve any significant success in imprinting literacy or numeracy skills, and the teachers did not much about the peculiar needs of adults.
- (2) Women were particularly confined within the four walls of the home and found unaware of many current events.
- (3) Caste system was found deeply embedded in the village community.
- (4) A majority of girls were found keen to learn English. Generally all were in favour of some sort of financial assistance to the poor.

Rani, S. (1982) evaluated the literature of adult learners prescribed in Uttar Pradesh. Following booklets were taken into consideration :

- (1) Naya Sawera Praveshika
- (2) Naya Sawera Pahali Pustak

(3) Auo Padhe Aur Sikhein

(4) Auo Charcha Karain

The evaluation of above mentioned booklets were done on the basis of decisions given by 25 experts only. It was found by the expert's opinion that among these booklets, most appropriate and valuable booklet is Naya Sawera Pahali Pustak (75.02%). Auo Padhe Aur Sikhein Pustak (72.28%) has average status. Other booklets were found not valuable. Typing main cover and letters of the booklets were found almost suitable.

Bastia, K. C. (1984) made a study on the National Adult Education Programme in the tribal region of Orissa State. The main objectives of the study were to study the process and content of National Adult Education Programme in the tribal region with respect to its objectives, and to study the relevance of the National Adult Education Programme in relation to the problems and needs of the tribals in their life situations. The findings of the study clearly indicate the curriculum followed at the centres mainly concentrated on the teaching of literacy and numeracy skills, and the impact of National Adult Education Programme on the neo-literates in different aspects, and improvement in their life was found to be effective in very few cases.

Rao, B.S.V. (1986) studied on women's performance to find out the impact of Adult Education Programme in respect of its three components, namely, literacy, functionality and awareness with the help of interviews using questionnaires. The results indicated that the literacy skills of female learners were best in writing names and reading sign boards and poor in reading newspapers and filling up forms.

Reddy, G.L. (1986) conducted a study on personality characteristics affecting participation in Adult Education programme. For the purpose of assessing the personality Cattell's 16 PF questionnaire Form E was used. The study revealed that personality characteristics which were found to promote active participation in the programme are cheerfulness, activeness, talkativeness, impulsiveness, expressiveness, practical and realistic outlook, absence of jealous tendencies, adaptive nature, concern for others, ability to work in team, maturity, confidence in himself and his capacity to deal with things, accompanied by coolness, desire for social approval

and admiration. The characteristics found responsible for the participants, dropping out of the centres were taciturnity, reticent, introspective tendency, impatience and impractical outlook, mistrust and doubtfulness, poor team spirit, depressed, moody and suspicious nature, child-like tendency to anxiety when confronted with difficulties independence, resoluteness and the habit of doing things in one's own way.

A field experiment was undertaken by Shah, A and Gupta, S. (1986), for a comparative study of the effectiveness of different types of visual aids—for instance, graphic (flash cards), three dimensional (puppets) and projected (slides) aids in impacting non-formal education. The major findings of the study were :

- (1) There were significant differences in the pre-test and post-test scores showing an overall impact, overall gain in knowledge, overall change in opinions, gain in knowledge of supplementary income activities and change in opinions with respect to supplementary income activities and change in opinions with respect to supplementary income activities in E_1 , E_2 and E_3 .

E_1 = Experimental group subjected to flesh cards

E_2 = Experimental group subjected to puppets

E_3 = Experimental group subjected to slides.

- (2) There was no significant difference in the pre-test and post-test scores showing the change in opinions regarding educating girls and women in E_1 , E_2 and E_3 .

Selvaraj, M. S. (1987) performed a study on application of behaviour modification techniques in educating adult learners in post-literacy centres.

It was found that all the six treatments adopting the behaviour modification techniques, have their significant effects in helping the neo-literates learn.

The purpose of the study done by Ubaidullah, M. (1988), was to examine whether differences in social, economic, demographic and mass-media would account for significant differences in the knowledge of attitudes towards and practices of population education as far as national adult education programme of Andhra Pradesh was concerned. The major findings of the study were that the variable,

such as sex, religion, caste, occupation, number of children, type of family and size were significantly related to knowledge of attitudes towards and practices of population education. Secondly, the variables, namely, type of house, institutional facilities available at the village and family literacy index are not significantly associated with knowledge of attitudes, towards, and practices of population education.

A study of attitudes of instructors towards adult education programme was done by Misra, A. (1988) and Kabthiyal, K. C. He found that female instructors were more conscious than male instructors about illiteracy situation of the country, particularly of illiteracy prevalent among women folk, instructors were not technically aware of the implications aims and prospects of adult education programme in overall development of the country. During training they were exposed to all such aspects of the programme, which incidentally led to generate in them a positive attitude towards adult education and there was no significant difference between pre and post-session attitude of the instructors towards adult education.

Villi, C. (1989) investigated the motivational change of the learners through song and drama programme. The study was aimed at investigating the changes in the level of motivation among adult learners under the area development approach after the drama programme. It was observed that :

- (1) The learners were adopting new habits in their life.
- (2) 91 per cent of the learners motivation had increased after witnessing the drama programme.
- (3) 82 per cent of the learners knowledge had improved through drama programme.
- (4) 32 per cent of the learners attendance had improved after witnessing the drama.

In an another attempt Kabthiyal, K. C. and Misra Arun (1989) explored the occupational needs of rural adult illiterates in Garhwal, Uttar Pradesh.

It was concluded that the main occupation of rural male and female in Garhwal was agriculture and was female - dominated. But due to their illiteracy and unawareness, they were adopting tiring and toilsome traditional agricultural techniques. Due to lack of knowledge

and skill, the level of occupational satisfaction of both men and women were found less. For the interested male respondents, lack of money was found to be the common cause behind their inability to start some new jobs or enter a new occupation.

Rao, D. B. (1989) studied on adult education centres programmes, problems and proposals, to find out whether the adult learners were interested or not and the role played by the organisers of adult education centres. The study revealed that the adults were utilising the adult education programme properly and were also participating in social activities. All the organisers except two were properly utilising the teaching material. 93 per cent of the sample were getting help in their teaching from the experienced people. Most of the organisers (89%) were discussing the problem of the participants and solving those problems by suggesting, remedial measures. Majority of the organisers (69%) were examining the progress of the adults by evaluation, after teaching. An average percentage of the sample was motivating the interested adults by giving prizes.

Singh, Rajender (1989); performed an experimental study of developing awareness among illiterate adults. This study was carried out to know whether adult education programme develops the level of awareness among illiterate adults. It was found that all the workers employed hygienic methods during milking after their exposure to the awareness development programmes. It was concluded that there was a significant improvement in the level of workers' awareness after they had the awareness development programme.

Vanaja, V. (1989), conducted a study of women dropouts in adult education centres. This study was limited to the dropouts from both rural and urban adult education centres in the taluk meant for the year 1985-86. It was concluded that :

- (i) It is necessary that the instructors should equip themselves properly in order to handle adults and guide them in a proper manner.
- (ii) Vocational skills may be introduced in adult education centres to make the learners productive and improve their economic condition. Adult education centres may become economically productive and find market for their products.

- (iii) Effort may be made to create awareness in the people which will help them to change their attitude towards the programme, and help relax the socio-cultural inhibitions against attending adult education centres by both married and unmarried girls.
- (iv) Development departments may be involved in adult education programmes this may motivate the learners.
- (v) Selection of teachers may be based on qualification and commitment than on caste and influence.
- (vi) Schemes like I.C.D.S. may be extended to all women adult education centres which may help women with small children which is found to be one of the main hindrances for them to attend adult education centres regularly.
- (vii) Jana Shikshana Nilayams may be opened in both urban and rural areas.
- (viii) Mass-media may be made use of to the full extent to create awareness about the programme, and to seek co-operation and help from the people to run adult education centres without much difficulty.

Reddy, B.K. and Reddy, P. V. S. (1991), made a study on reading interests of neo-literates. It was concluded that following should be considered while developing the materials for neo-literate reader :

1. The neo-literate has limited reading ability and he is not a habitual reader, also he is not familiar with the standard or formal language. Therefore, the author should familiarise himself/herself with these features.
2. As the neo-literate is a user of oral mode and style of language, and it is often highly functional and has an adequate and active vocabulary, it is desirable for the author to familiarise himself/herself with the neo-literates language by interviewing them.
3. As the neo-literate is a fully matured human being with a specific value system as well as a world-view, the author must select themes that would be of interest to a neo-literate reader. The basic requirement in selection and treatment of themes would be to enlarge upon the life around him/her and to provide entertainment and human interest. Keeping this in view the National Book Trust, India has suggested the following :

- (i) The theme should not present an activity with which the reader is not familiar.
- (ii) The theme must make the reader reflect on his/her socio-economic conditions as well as his/her environment.
- (iii) The theme should make the reader reflect on how he/she can improve his/her condition and take advantage of developmental opportunities.
- (iv) The theme should make the reader look for solutions to his/her immediate problems.
- (v) The theme should make the reader aware of national concerns and issues.

4. Regarding illustrations for books for the neo-literates the following suggestions have been made by the National Book Trust, India.

- (i) Visuals and words have to work closely together.
 - (ii) Obvious situations and objects need not be visually portrayed.
 - (iii) If the text is for recreation, then dramatic situations may be visually depicted.
 - (iv) If the style is realistic, then the colour should also be realistic.
 - (v) Illustrations should be native to the culture, i.e. they should depict authentic landscape, costumes, flora and fauna etc.
 - (vi) The illustrations should use realistic techniques to convey abstract ideas.
 - (vii) Illustrations may occupy 30-40 per cent space in the book.
 - (viii) Clarity, authenticity and attractiveness are the most important factors.
 - (ix) Illustrations shall be in two colours, with the cover in maximum three colours, in realistic and attractive style.
5. (i) For publishers it is suggested by the National Book Trust, India, that for the size of a book for the neo-literates, though not strictly prescribed, the desirable norms would be

$$\frac{20 \times 30}{8} \quad \text{or} \quad \frac{18 \times 22}{8} \quad \text{or} \quad \frac{17 \times 27}{8}$$

- (ii) Regarding the type-size and quality of paper it is suggested that the type-size would vary from 16 pt. black to 24 pt black, depending on the size of the book and literacy level of prospective readers. Besides the type-size, usage of the standard shapes of letters is important. Good quality white printing paper should be used so that the print on one side is not visible on the other.
- (iii) Regarding binding, the central stapling or two staples at equal distance should be done depending on the number of pages upto a maximum of 64 pages.

Sebastian, X. (1991), made study of the extent of correlation of attitude and achievement of neo-literates in cent per cent literacy campaign and found that there was positive correlation between attitude and achievement (literacy level) and it was found to be 0.6782. The correlation of the universe was also calculated and it was found to be in between 0.6418 and 0.7146.

- The extent of relationship between attitude and achievement of neo-literates could be found out by the equation $y = 0.3434x - 26.7727$ (where y stands for achievement score and x stands for attitude score). From the regression graph, it could be easily seen that higher the attitude of the learners, the higher would be their achievement.
- The percentage of high achievers of literacy was 18 per cent average achievers 67 per cent and low achievers 15 per cent. (Those getting scores at or above $(M + \sigma)$, where M = arithmetic mean, = standard deviation, were classified as high achievers and those getting scores at or below $(M - \sigma)$ were classified as low achievers and the remaining respondents as average achievers). In the analysis of attitude score also the same percentage of high, average and low attitudes was found. These findings showed that attitude had a decisive influence on achievement (literacy level).
- The respondents were economically poor and 80 per cent of them belonged to backward classes. 69 per cent of the respondents had an annual income below Rs. 4,800 only and all the respondents come under the annual income below Rs. 7,200. This showed that there was a significant correlation between poverty and illiteracy.

On the basis of the study conducted and the analysis made some suggestions were put forth for the more successful launching of literacy campaigns :-

- (a) Favourable conditions must be created for the illiterates to increase their attitude towards literacy.
- (b) Mass mobilization is the only way for eradicating illiteracy to a considerable extent and also in a short period of time.
- (c) Making of a good report between teachers and learners is very essential for the success of a literacy campaign.
- (d) A systematic effort in building up mass awareness is necessary to make a literacy campaign effective.
- (e) While appointing instructors it is to be kept in mind that those who hail from the same cultural milieu and community of the learners are able to understand the peculiarities of the learners more easily and accurately.
- (f) Involvement of students should be increased by making literacy work as a part of study service, work experience and social/national service.
- (g) Newspapers and magazines for neo-literates must be published and provided to them free of cost helping them retain the acquired literacy.
- (h) The expenditure of this type of campaign must be reduced and the duration of this type of campaign must be enhanced.
- (i) Follow up action of literacy campaign must be intensified.

Environmental Education

Gupta, V.P. and others (1981) made a study on environmental awareness among children of rural and urban schools and non-formal education centres and found :

- (1) The difference between school-going rural children (FR) and school going urban children (FU) on environmental awareness was significant and in favour of school-going rural children (FR).
- (2) Difference between children studying in non-formal education centres (NER) and school going children from urban areas (FU)

was also significant on environmental awareness and in favour of children studying in non-formal education centres.

- (3) The difference between children studying in non-formal education centres (NFR) and school going children from rural areas (FR) on environmental awareness was not significant.

Manuel (1982) analysed some worthwhile environmental education models in India and abroad and other relevant materials from the point of view of developing a functional theory of environment education.

Rajput, J. S., Saxena, A. B., Jadhao, V. G. (1980), identified the awareness of children of primary level, towards the scientific and social environment. The study revealed that only one of the four groups (2 schools \times 2 classes) were significantly different on environmental awareness at pre-test stage, whereas at the post-test stage two experimental groups were significantly better than the control group. The difference between the experimental group and the control group on a traditional achievement test was not significant.

Central Regional Centre, Jabalpur, conducted a project on nutrition, health education and environmental sanitation in primary schools (1981). The main purpose of the project was to develop instructional material for students and teachers relevant to local environment and to implement the programme in selected schools and evaluate the impact of the programme. Results of the project showed that impact was observed in awareness of the cleanliness of clothes, hand, feet and cutting of nails.

In another attempt, Pai, S.G. (1981) prepared and tried out a curriculum in environmental studies leading to life-long education for college students. The study showed that there was a significant difference in the performance of the experimental group compared with control group on knowledge score and attitudes scores. Suggestions were made to pay more attention to the actual process of education in the class-room and bring about a conceptual change in its role.

Siddiqi, W.A. (1981) made an study on hydrochemical environment of Hindon river and their impact on regional biology. The area under study falls under Hindon river basin comprising of the four district of Ganga-Yamuna starting from Saharanpur in the

north followed by Muzaffarnagar, Meerut and Ghaziabad districts in the South. It was found that the water pollution in the study area was mainly due to the indiscriminate disposal of industrial wastes on the land and other surface water channels. It had thus also created serious water pollution problem.

An experimental study of the effect of the noise on perceptual motor abilities, in neutral and motivated conditions was done by Anjum Shahina (1982). Following perceptual motor abilities were under study :

1. Perceptual similarity
2. Perceptual speed and accuracy
3. Perception of forms
4. Motor ability

The study tests the subjects in four conditions :

1. Noise absence neutral (NAN)
2. Noise absence motivated (NAM)
3. Noise neutral (NN)
4. Noise motivated (NM)

The study revealed that :

- (1) Performance declines in noisy environment.
- (2) Performance was better in motivated condition than in non-motivated condition.
- (3) Performance decrement effect of noise was minimized if subjects were motivated.

Yadav, Madhuri (1987) made an experimental study of the effect of noise on recall, memory, language comprehension and mathematical ability of girls and boys. Major findings of the study were :

- (i) Noisy as adverse effect on recall ability.
- (ii) Language comprehension ability deteriorates under noisy condition.
- (iii) Noise had no effect on, mathematical ability significantly.
- (iv) The girls were less affected by noise than boys.
- (v) Girls had shown superiority over boys in ability to recall language comprehension and mathematical ability.

Educational Technology (Programme Learning)

Rahim, A. (1969), compared the effectiveness of teaching by the programmed instruction technique with that by the 'usual' classroom procedures. For this purpose a linear programme on 'Static Electricity' suitable for class XI student was constructed. Results revealed that the experimental group gained both in terms of average scores and distribution of pupils with regards to the scores obtained. Results of this study were in the favour of programme instruction. It was concluded that the programmed instruction technique can be employed with advantage in our school.

In an another attempt, Khan, Amanullah (1972), compared the effectiveness of programmed instruction technique with that by conventional class-room procedures. For the purpose of this study a linear programme on 'Ohm's Law' was constructed. Programmed instruction technique was found more effective than the 'usual' class-room procedure.

Chauhan, S.S. (1973) developed a programmed text in educational psychology for B.Ed. level.

The study revealed that :

- (i) the error rate of the entire programme did not exceed 8.72 per cent.
- (ii) the density of the programme calculated by taking into account the number of frames and number of responses expected was found to be 1.117.
- (iii) the sequence progression for each unit was fairly normal, and
- (iv) the opinion expressed by the student teachers was found to be favourable towards the programme.

Gupta, O.N. (1973), studied to develop a self-instructional programme in the basic sentence patterns of English for the undergraduate students and to make an empirical study of the programme on the basis of field testing. The final version of the programme was evaluated in terms of programme density, error rate and sequence progression separately for the two major parts, viz., definitions and structures. The programme density for the frames on definitions ranged from 0.4 to 0.15 and the error rate for the same ranged from 1.2 to 3.4. The programme density for the frames on

structures ranged from 0.4 to 0.08 and the error rate for the same ranged from 1.4 to 3.2. The average density and error rates for the complete programme taking the parts on definitions and structures together were 0.06 and 2.0, respectively.

Patel, O.B. (1975) developed programmed learning material in geometry for standard IX and studied its effectiveness in the context of different variables. The findings of the study were :

- (i) the programmed learning material (PLM) proved to be more effective than conventional method.
- (ii) high and low 1.8 groups of students performed better with programmed learning material (PLM) than with conventional teaching.
- (iii) the average time taken by the group learning programmed learning material was less than that of the group taught by the traditional method, and
- (iv) students from different strata of the society performed better with programmed learning material than with conventional teaching.

Lal, Khan (1976) studied on audio-visual materials. The main findings of this study were :

Equal number of teachers of both Delhi and Aligarh agreed with following reasons :

- (a) Audio-visual' materials are useful in supplementing the text-books.
- (b) These materials help to attract and sustained the attention of the pupils.
- (c) These aids can promote student's cooperation and participation in lessons.
- (d) Group feeling can be promoted through the use of 'Audio-Visual' materials.

Govinda, R. (1976), developed programmed text on educational evaluation. The experimental study revealed that :

- (i) a programmed text was as effective as structured lectures.
- (ii) eighty per cent of the students had favourable attitude towards programmed learning.

- (iii) students with more favourable attitude achieved higher scores.
- (iv) intelligence and achievement motivation had no definite effect on achievement.
- (v) there was no significant relationship between attitude of students towards programmed learning and their intelligence, and
- (vi) there was no significant relationship between attitude of students towards programmed learning and their academic motivation.

Shitole, C.B. (1976), performed a study to develop programmed learning material for agricultural subjects in Marathi medium Secondary Schools and to study its utility for different categories of students. The results showed the superiority of programmed learning method over the traditional one, irrespective of the category and sex of the student. The study also showed that programmed learning method required less time than the traditional one.

Kuruvilla, R. (1977)' made an experimental study in the use of programmed learning material in the class-room.

The major findings of the study were :

- (i) Eighty per cent of the students who had learnt through different types of programmes had scored eighty per cent or above.
- (ii) The branching form was significantly more effective than other forms when students' performance and time were taken as criteria.
- (iii) There was positive and significant relationship between performance of students of post-test and reading comprehension on each form separately.
- (iv) There was no significant relationship between performance of students on post-test and academic motivation on linear overt, branching and response prompt forms, but skip programme had a positively significant relationship.
- (v) Most of the students had positive attitude towards programmed learning.

Kumar Shruti (1977), made study to prepare programmed learning material in Hindi Grammar and to investigate into its effectiveness.

The major findings of the study were :

- (1) Results ensured that programmed learning material had a direct bearing on the minds of learners. They understood things more clearly with programmes.
- (2) Programmed learning material had superior performance in comparison to traditional group as its effectiveness is proved by the experiment.
- (3) Girls and boys had the same ability to understand the things whether they learnt by programmed material or by teacher in traditional way. Learning was not effected by their sex.
- (4) Results had shown that the students of rural areas did better than the students of urban area, whether they were boys or girls and whether they had learnt by programmes or they were taught by the teacher.

Kumar, Jitendar (1978), made a study on programmed instruction effectiveness in relation extraversion. The study attempted to investigate the interaction between extraversion and instructions through linear programme and conventional methods of instructions.

Trivedi, I.U. (1980), performed a study on use of branching variety of programmed learning material as diagnostic and remedial tools.

The major findings of the study were :

- (i) For class VI, the programmed learning material was more effective than the conventional method of teaching whereas for classes V and VII, both the methods were equally effective in terms of pupils' achievement.
- (ii) In the case of class VI, girls learnt better than boys through the use of programmed materials, whereas in the case of classes V and VII, there was no significant difference between the mean scores of boys and girls learning through programmed materials.

Suthar, K.S. (1981), made a study of performance on programmed learning material in relation to some psychological characteristics.

The findings of the study was that the programme learning material was superior to the traditional way of teaching, irrespective of different variables.

Shah, J.C. (1981), studied to develop programmed material in mathematics for students of class V in Gujarat State.

The outcome of the inquiry were :

- (i) Programmed material on the selected units in mathematics for class V was developed. The total time for completing the programmed material was twenty four hours and forty minutes.
- (ii) The reactions of the students and the teachers were favourable.

Mavi, N.S. (1981), developed a programmed text in physical Geography for high school students.

The findings of the study were :

- (i) Ninety-five per cent of the learners were able to respond correctly to 95 per cent of the frames.
- (ii) The cumulative density calculated by taking into account the number of frames and the number of responses expected did not exceed 0.50.
- (iii) Sequence progression for information through the frames was fairly normal.
- (iv) On unit tests, the success reached by learners ranged from 85 to 91 per cent.
- (v) The opinion expressed by the students was found to be favourable towards the programme.

Rizvi, Rani Bano (1982), Investigated the effectiveness of linear programme and conventional methods of teaching in relation to learner's characteristics. This study proposed to investigate interaction between Introversion-Extroversion and Neuroticism on the one hand and achievement through programmed learning and conventional methods of teaching in the other. The results clearly showed that achievement through Instruction (ATI) researches can go a long way for individualization of instruction by assigning instructional treatment suited to the learner's attribute.

A study on development of multi-media instructional strategy for teaching science (Biology) at secondary school level was done by Ravindranath, M.J. (1982).

The main findings of the investigation were :

- (i) The instructional strategy was effective to the extent that 70 per cent of the experimental group students obtained 60 per cent and above on all the unit tests and the comprehensive test.
- (ii) The experimental group students performed better than the control group on the comprehensive test and also on the annual examination conducted by the school authorities.
- (iii) Development of scientific attitude was significantly higher for the experimental group students.
- (iv) About 70 per cent students expressed favourable reactions to all the components except towards team teaching.
- (v) There was positive and significant correlation between intelligence and achievement through the strategy.
- (vi) The strategy was quite feasible in terms of time as it required only ten additional periods spread over the whole year for completing the course.
- (vii) Both types of PLM, namely, inductive and deductive were equally effective as instructional material.

In an attempt, Singh, Brajvir (1984) studied programmed instruction effectiveness in relation to cognitive styles. The main objective of the study was to investigate the interaction between three dimensions (analytical relational and categorical) of cognitive styles and two instructional treatments namely, expository and programmed learning. It was found that the students low on analytical dimension and high on categorical dimension achieved high through programmed learning than their counter parts.

Kerala, Sunita (1989), studied interaction effects between intelligence and programmed and expository styles of teaching in distance learning.

It was concluded that the use of expository lesson texts was not fruitful in distance learning for high as well as low intelligence students and the programmed lesson texts may be adopted for low intelligence students perhaps due to the fact that through programmed lesson text, the student got frequent reinforcements and feedback just like in face to face teaching situations.

Curriculum Development (Development of Literature)

Shukla, G. B. (1975) made a critical study of curriculum development at the stage of elementary education in the state of Gujarat.

The major findings of the investigation were :

- (i) The primary education curricula was divided into two phases, for classes one to five, and for classes five to eight. The major defects of the primary school curriculum were lack of practical knowledge, inadequate arithmetic in the lower classes, emphasis on information rather than understanding, a heavy load of subjects matter, absence of moral education, low level of instruction in history, rational geography, the local trade, industry etc., a curriculum divide flexibility and the like.
- (ii) The respondent felt an urgent need for a continuous programme of monitoring and evaluation of the curriculum.
- (iii) The need to undertake studies for improving teacher motivation was felt.
- (iv) Teachers and teacher-educators felt a lack of involvement in the process of curriculum construction.

Uppal, S. S. (1977), made an attempt to study development of curriculum in science for standard VIII of the secondary schools in the state of Maharashtra. The findings of the study clearly indicated that the existing syllabus in forces in the state needed modification, and the syllabus suggested by the investigator was found to be effective.

Sundararaj, S. (1978) studied on development of curriculum on population education for college students, and to examine its efficacy in terms of pupils' knowledge, understanding, application as well as conditioning, awareness, opinion and attitude. The findings of the study were :

- (1) Improvement in overall performance through instruction was shown by the significant difference in the mean scores of the experimental group in the post-test as compared to those in the pre-test.
- (2) Performance of the experimental group in the post-test was significantly higher than that of the control group on conditioning scores.

- (3) Performance of the experimental group on awareness scores in the post-test was significantly higher than that of the control group.
- (4) Performance of the experimental group on the opinion scores in the post-test was significantly higher than that of the control group.
- (5) The adjusted post-test mean attitude score of the experimental group was significantly higher than the adjusted post-test mean score of the control group.

Thakore, R. (1979) studied on developing a curriculum in population education for secondary teachers under training. For developing a curriculum on population education for secondary teachers under training, the investigator made an elaborate study of all the relevant literature available both in the area of curriculum theory and that of population education. The new curriculum developed was actually tried out for the whole academic year in the normal working conditions. The measurement aspect of evaluation was complemented by the assessment aspect. Finally the curriculum package was developed for teacher trainees.

A study and tryout of a curriculum for mentally handicapped children was performed by Shukla, N. N. (1979), developed and evaluated the curriculum for mentally handicapped children. It was found :

- (1) The Gujarati medium students taught by the modified instructional material performed better in language and arithmetic in the first evaluation while in the second evaluation they were significantly better in all aspects.
- (2) Among the two groups of the Marathi medium students there was no difference in the first evaluation, while in the second evaluation those exposed to the modified syllabus showed better performance in arithmetic, general knowledge, community living, drawing and handicraft.
- (3) According to teachers' opinion regarding improvement of Gujarati medium students Chi-square values were not significant. However, there was significant improvement in arithmetic, language, general knowledge, health and community living among those exposed to the new curriculum, while there was

no improvement proved in handicrafts, music and physical education.

- (4) Teachers' opinion regarding improvement of Marathi medium students taught the new curriculum indicated significant improvement in general knowledge, language, arithmetic, sense-training, music, health and community-living while in handicrafts and physical education the difference was not significant.

Pai, S.C. (1981) studied on preparation and tryout of curriculum in environmental studies leading to life-long education for college students. The main findings of the study were :

- (1) There was significant difference in the performance of the experimental group as compared to control group on knowledge score and attitude scores.
- (2) The experimental group had gained more than the control group in environmental activities inventory, indicating effectiveness of the curriculum.
- (3) As the result of instructions for using the curriculum, students reflected clear images perceived in terms of their sensitivity towards the environment.
- (4) Unit-wise analysis of the performance of the students in the experimental group showed that they have gained over all knowledge in environmental problems as a result of the knowledge gained from the new curriculum.

Muttaqi, I.A. (1981), conducted a study on development of curriculum in Biology for Secondary Schools of Bangladesh. The study was both a developmental and an evaluative research. The major findings of the study were :

- (1) In the formative evaluation the curriculum and the curricular materials were found suitable, appropriate and effective in achieving the curricular goals.
- (2) In two grades the rural students showed more favourable attitude towards environment than the urban students of the same grades while in the majority of grades there was no significant difference in the mean gain in achievement of the rural and the urban students.
- (3) There was significant difference in the level of ecological knowledge of boys and girls, the girls possessed more knowledge

than the boys. In majority of the grades there was no differences in attitudes of boys and girls towards environment.

- (4) In the majority of the grades the difference between the rural and urban boys in respect of knowledge in ecology was significant, the knowledge in ecology of urban boys was greater.

In the same year, Jarial, G.S. (1981), prepared instructional material for developing creativity in students and assessed the effectiveness of verbal and non-verbal instructional material in the development of creativity of students. It was found that :

- (1) The post-test creativity mean scores of students of verbal and non-verbal experimental groups were significantly higher than those of the students of the verbal and non-verbal control groups.
- (2) The post-test mean scores of male and female students of verbal experimental group were not significantly different in any of the four aspects of verbal creativity the post-test mean scores of male and female students of non-verbal experimental group were not significantly different in four of the five aspects of non-verbal creativity, namely, fluency, flexibility, originality and total creativity, whereas in elaboration aspect of non-verbal creativity, female students of the experimental group scored significantly higher than male students of the experimental group.

In another attempt, Ram Das, J. (1981), who studied on curriculum development in science relevant to the Indian School system in Poona University. The study led to some broad generalizations. The comparison of the control and experimental groups revealed that teachers showed some significant factors such as willingness to change their teaching methods and go beyond the textual material to include real life experiences, and to encourage participation of pupils.

Indian Council of Social Science Research Association of Indian University developed a curriculum of population Education for secondary teachers under training, and tryout of developed curriculum was done, under normal set-up of a secondary teachers' training college. It was concluded that such a curriculum may also prove useful for starting inservice programme in population education for the secondary teachers already serving in the school of Gujarat.

After survey of related literature it is concluded that several efforts on curriculum development have been made in foreign countries as well as in Indian situation concerned. The findings of these researches were helpful to mould the curriculum according to existing needs of the learners. These studies showed the weaknesses of curriculum at different levels and also helped to suggest the novel ideas related to learning experiences, content and instructional strategies. The studies on environmental education revealed that awareness in the learners towards their scientific, social and cultural environment is a significant approach.

Scientific researches related to adult education in our country has to be the commitment of the nation because of its direct relevance for improving the existing condition of the poor. The research findings and results of this field are of immediate use and are very helpful to promote this programme. The effort of University in this direction is appreciable.

The review of related literature also indicates that attempt in Curriculum Development, environmental education have been made in India since long. Generally these attempts have been done at school level. Like school students, it is essential to develop awareness, right attitudes in adult learners, which requires a well prepared curriculum directly related to their life experiences. The occupation of an adult learner is an important fact to be considered through which an adult educator can enter into his psychological world.

Thus, it can be said whatever researches conducted in the field of adult education have no relevance with the prevailing conditions and far from realistic situation, which create dilemma of mental exercises. Here the researcher has tried to synthesize the three dimensional nature of the content according to the urgent need of the adult learners in their own environment. This has to enhance the efficacy of the content provided to them as well as sustain their inner urge to read and motivate for desirable learning.

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Chapter 3

THEORETICAL FRAMEWORK

Development of Post-Literacy Material

Post-literacy may be defined as systematically organised learning opportunities for persons who have had access to basic education through either primary education or any other systems. Post-literacy may also be defined as all those materials and structures, which enable the newly literate adults to keep up, use and develop the knowledge he has acquired. The main purpose of post-literacy programme is retention, continuation, reinforcement and application of literacy for the development of the individual and the community. One of the major strategies to accomplish the task is an uninterrupted supply of good reading material in sufficient quantity.

The National Policy on Education (1986), therefore, resolved to implement a programme of continuing education by establishing centres in rural areas and through the promotion of books, libraries and reading rooms.

The Programme of Action further elaborated the concept of continuing education as being essential for the development of human resources and for creating a 'learning society'. It included post-literacy for adult neo-literates and school drop-outs for retention, continuing acquisition and application of literacy skills. The Programme of Action Visualised the establishment of Jana Shikshan Nilayam in a cluster of villages and programmes of book promotion and reading rooms as an instrument of post-literacy and continuing education.

The National Literacy Mission aims at implementing a programme of post-literacy and continuing education in a phased manner. The National Literacy Mission also envisages the introduction of the latest technology in the printing and publication of books, journals and newspapers.

The Working Group on National Book Policy states that adult non-formal education can be a success only, through the dynamic use of a people's planning exercise. This means that local talent can be harnessed and local resources deployed for creating necessary motivation and producing initial literacy materials.

In India, centre based approach for adult education failed to achieve the real progress in the field of mass literacy. Hence, it was felt that the orientation of the programme should be changed. With the result of that 'Total literacy campaign' was launched in various districts. It is time bound area based approach for total literacy. Some districts have already been declared as literate districts. The neo-literates who have been literate through this programme, want mental nourishment in the form of post-literacy material. Thus an effective programme of 'post literacy campaign' should be launched as to extend the programme of 'Total literacy campaign'.

Past experiences and studies have shown that lack or inadequacy of suitable post-literacy material has been a serious drawback of the adult education programme. It is, therefore, extremely necessary that adequate emphasis be laid on post-literacy programme activities in our present adult education programme. Post-literacy should be viewed not only a part of the literacy programme but should be treated as an integral part of the universalisation of educational facilities. While preparing the post-literacy material the following points should be kept in mind :

It should —

- (i) reinforce the literacy skills already acquired in its continuation and application, leading to a stage of self-reliance.
- (ii) develop reading habit. Material could be read just for pleasure and joy which enable the neo-literates to develop a taste for reading.
- (iii) enable the neo-literates to perceive and analyse the generative sources of their disadvantage, and equip themselves with such tools and techniques which could liberate them from deprivation and exploitation.
- (iv) make them aware of their cultural heritage.
- (v) inform them about developmental and welfare programmes meant to alleviate poverty, remove inequalities and improve their lives

- (vi) impart the practical skills which would help them to engage in gainful employment and improve their economic condition. This would enable them to participate effectively in the affairs of the family, of the society and eventually of the nation.
- (vii) develop an questioning attitude towards different aspects of the value system which harbour narrow-mindedness, blind belief and obscurantism which stifle the natural growth of a person and hamper the advancement of the country.
- (viii) help to develop a critical faculty and scientific temper among the neo-literates.
- (ix) provide entertainment as a part of life. The literature could be read just for pleasure and joy, which may enable the neo-literates to develop a taste for reading.
- (x) provide information, knowledge and skills necessary for realising the personal, social and economic needs of individuals, the community aspirations and the national vision.

Psychological Characteristics of Neo-Literates

Whenever we devise a programme of education for any level we make some valid assumptions regarding the characteristics of the members of that target population. As far as this study is concerned the subjects of this study are neo-literates which belong to the age group 15-35. Individuals growing from adolescence to adulthood express certain characteristics :

- (i) One's self concept moves from one of being a dependent personality towards one of being self-directed human being, poverty and social deprivations lead to development of a negative self-concept of one's own capabilities.
- (ii) One accumulates a growing reservoir of experience that becomes an increasing resource for learning.
- (iii) One's readiness to learn becomes oriented increasingly towards the developmental tasks of his social roles.
- (iv) One's time-perspective changes from one of postponed application of knowledge to immediate application and accordingly one's orientation towards learning shifts from subject-centredness to problem-centredness.

Besides these, other remarkable personality characteristics of neo-literates are :

- (i) limited perception and obstinacy to receive new things,
- (ii) limited vocabulary,
- (iii) non-questioning attitude and expectation of ready made solutions,
- (iv) externality (fatalism and belief in destiny), and
- (v) rigidity and dogmatism etc. that stand against one's path to personal development.

Malcolm Knowles (1970)² lists four major points of adult learning psychology :

- (i) adults have wide experience and have learnt much from life.
- (ii) adults are interested and learn quickly about those things that are relevant to their lives.
- (iii) adults have a sense of personal dignity.
- (iv) as adults grow older, their memories may get weaker but their power of observation and reasoning often grow stronger.

Ambast (1991)³ has drawn the following characteristics of adult learners :-

- (i) adult learner has a recognizable place in society, he/she is either a father/mother etc. He/she has also some sort of authority.
- (ii) unlike child learner adult learner has not cohest in participating learning process.
- (iii) adult is a master of himself and his personality is developed.
- (iv) adult vocabulary is very much longer by virtue of long life.
- (v) adult learner is a matured person having a sense of 'will be'; interest; attitudes; conscious and unconscious motives etc.

The adult learner sees utility only in things that satisfy his aspirations and fit to his level of mental developments field of experiences and felt needs. Incentives may be in terms of resultant financial gain, social gain like enhanced prestiges or representation in social institutions, or fulfilment of spiritual aspiration. There is a natural urge for empathy and ego satisfaction. The occupation of

an adult learner is an important fact to be considered through which an adult education can enter into his psychological world. Post-literacy material for the development of their ability to read and write, and communicate in terms of their day to day life activities interest them much. So it necessitates to plan environmental education programmes according to the interests, needs, attitudes, values, memorization, ability, language skills, attitudes towards instructors, ways of looking at things and wide experience of the adult learners.

Education of Environment Through Post-Literacy Material

The area of environmental education is comprehensive. It includes psycho-physical and social factors known and unknown which directly or indirectly affect his living and working conditions. The environment of an individual can be affected by a number of aspects of personal behaviour like personal hygiene and cleanliness, diet cleanliness of the food. There are many ways in which influence for good can be exerted on our environment and on our behaviour, and the best way of doing this is through education, knowledge, understanding and action are the three key words for environmental education. Therefore, framing the post-literacy material of environmental education, the following questions should be considered :

- (i) What knowledge related to environment should be given to neo-literates ?
- (ii) How can neo-literates be helped to understand the relevance of this knowledge to their own lives and those of their families and community ?
- (iii) In what activities can the neo-literates take part in, to allow them to put into practice what they have learnt ?

The knowledge aspect of environmental education covers all the physical and social factors known and unknown which directly or indirectly affect his living and working conditions. The physical environment geographical land-marks, topography and climatic conditions, man-made features and health, nutrition and sanitation. The social environment consists of the family, community life, relationship with members of the community, festivals, community helpers, services and the mode of production, procurement and supply of essential commodities. It also constitutes socially acceptable

habits and attitudes for an effective living and functioning in a society.

In order to help the neo-literates for understanding the knowledge of environment, one should know that the neo-literate is part of socio-economic, psychological and political sub-systems of the total environmental system. He is a product of this composite environmental culture. At adult education centre two types of interactions take place. Interaction between man-man and man-material in different settings such as home, community, school, work-place etc. These different types of interaction which constitute the learning environment provide the corresponding learning experiences to learners, which on their part interact with each other and result into learning and education of neo-literates.

The immediate surroundings of the neo-literates play a very important role as a basis of meaningful learning. The surroundings should be designed so that learning may proceed with minimum stress and maximum effectiveness. Thus it should promote sensory comfort and high auditory and visual activity. Healthy learning environment makes the learning a joyful experience. It elevates the heart and enlighten the mind of the neo-literates. Learning environment of neo-literate includes everything inside and outside of the space, the neo-literate occupies which in any way affects his behaviour during a particular routine. Effective learning can be achieved using environment as a source of stimulus to learning. The process of learning through environment involves the neo-literates in activities using objects and situations from the world around him, leads him to think for himself. Not only that, learning through environment is also helpful to develop in the neo-literates the skills of observation and classification, to improve vocabulary to practise counting and to develop concepts of size, shape texture and mathematics. Learning through environment is also helpful in developing team spirit among neo-literates. They learn to work together with responsibility. It is an approach where the education is through the environment i.e. using environment for the development of learning skills. The education is also about the environment i.e. learning facts and informations pertaining to the environment. In so doing neo-literates also learn how to appreciate, protect and maintain the environment i.e. education for the environment. This approach for learning requires the instructor to spend much time in planning what is to be done.

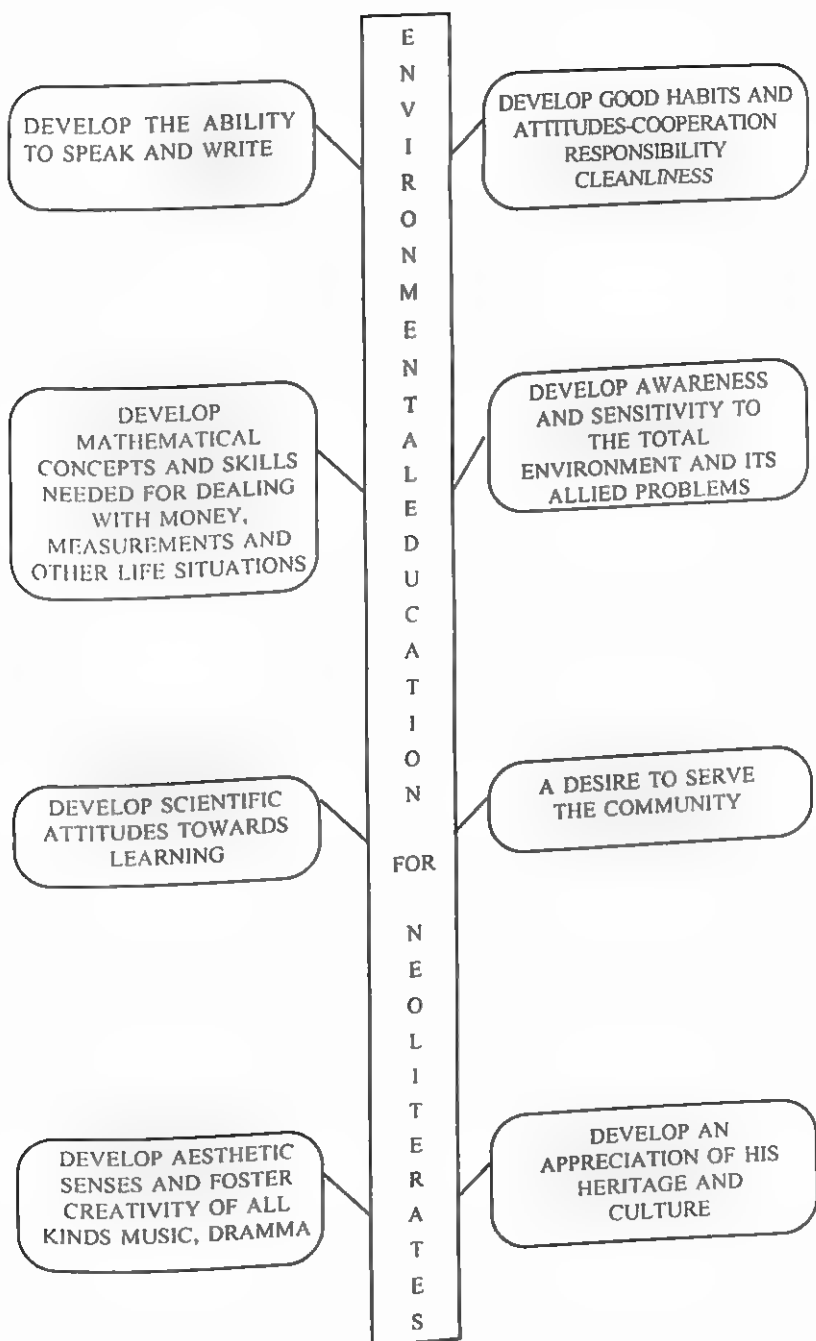


Diagram 3.1

Diagram 3.1 depicts the whole design of Environmental Education for Neo-Literate.

Post-Literacy Material for Neo-Literates

The post-literacy material which are being supplied to adult education centres for neo-literates is in the form of short story, drama and poetry. Reputed voluntary organisations, private agencies and government agencies have developed the post-literacy material according to needs and interests of the neo-literates with unique ideas. (List of important Adult-Education Agencies engaged in production of literature for adult education is attached - See Appendix 2).

Introducing noble ideas, new innovations and bring changes according to the demand of the particular target group are the indicators of progressive society. Several new innovations have been made in the formal school education system after independence. The adult education programme also wants new innovations as to make the programme more effective. Considering these points and keeping in mind the psychological characteristics of neo-literates, it has been realised that new approach towards teaching/learning skills is two-pronged to make the post-literacy material functional and to introduce techno-pedagogic inputs. The National Literacy Mission also identified at least six issues for the success of the programme.

1. National commitment,
2. Creation of an environment conducive to learning,
3. Motivation of learners and teachers,
4. Techno-pedagogic inputs,
5. Efficient management, and
6. Monitoring

The technological inputs improved black-boards, better slates, good quality learning aids like charts, globes, maps and models, use of radio, audio/video cassettes and other electronic devices for learning. The development of electronic devices—hardware and software to be used in the educational field for improving the efficiency of teaching and learning. Thus technological inputs is being developed with the aim not only of making education more

widely available but also of improving the quality of education which is already available. Developments in technology bring about changes and shifts in educational goals which, in their turn, stimulate the emergence of newer techniques.

As a result of the impact of educational technology, a few ideas have acquired currency in education. One idea is that education should be an individual activity to a much greater extent. Not all learners should be faced to go through the same steps of learning at the same speed. The quick learner will move faster in their learning whereas the slow learner will need more time. Another idea is that learners learn best in different ways and at different times. Few learners may learn better through the use of different learning materials rather than merely listening to an inspirational talk by the instructor. According to psychologists, learner learns best if they use their senses in acquiring knowledge.

One idea is that learning can be accomplished faster and better through reinforcement. The well known psychologist, B.F. Skinner, put forward a revolutionary idea that the amount of learning could be enhanced if the knowledge to be learnt were broken into small pieces and each piece presented so clearly that the learner could not make mistakes. A very slight immediate reinforcement at every correct response would have a tremendous effect on controlling behaviour. The arrangements of tiny bits of knowledge into a logical sequence is called the programme. The process is called programmed learning. It is an innovative step towards automation and individualisation of instruction. It is a kind of game in which the learner can hardly lose. The more he wants to win and the more he wants to learn. Programme learning is an application of principles of behavioural sciences and technology in the field of education.

Basic Principles of Programming

Five basic principles of programming are as follows⁵:

(a) Principle of Small Steps

The subject matter which is to be programmed is analysed thoroughly and divided into meaningful segments of information. One segment of information is presented at a time to the learner. This piece of information is called **frame**.

(b) Principle of immediate confirmation

The immediate confirmation of result is the second basic principle of programming. A learner learns better and is motivated to learn more, if he is told that he is right after he takes a step in the right direction, i.e. to say, if he is reinforced.

(c) Principle of active responding

Active responding means active involvement of learner in the learning process. Programming provides active responding on the part of the learner. The learner remains busy and active when he works on the programme. Overt and covert both responses may be active responses.

(d) Self-pacing

The fourth and an important principle of programming is self-pacing. The learner proceeds at his own pace when he works through a programme. He is not forced to move with the other members of the class. Programming, by providing self-pacing, has incorporated the principle of individual differences in the teaching-learning process.

(e) Student-testing

Regular assessment of student by the teacher is the most specific feature of programme learning. For teachers it is helpful to find out the weakness of his programme and modify the programme according to needs and interests of the learners. Not only that student can also evaluate his progress on the programme.

The development process of programme text is given in the next Chapter.

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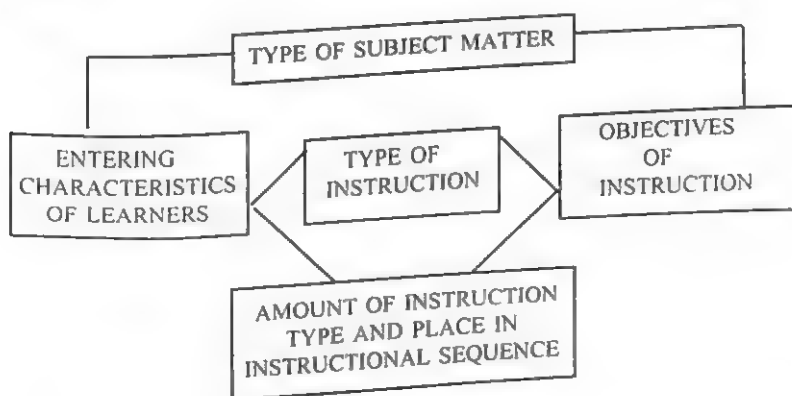
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Chapter 4

DESIGN AND PROCEDURE OF THE STUDY

The procedure, an important phase of research and the design of the study, is of prime importance in attracting research problem in a scientific manner. Kerlinger (1973)¹ defined research design as "the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and control variance". The plan includes an outline of what the investigator will do from writing the hypothesis to the final analysis of the operation of variables. The strategy implies how the research objectives will be reached. Shulman (1970)² suggested a scheme for examining the variables which should be considered in formulating propositions about the best form of instruction, particularly when the practitioner is confronted with a contrasting array of positions. The scheme is depicted in the following manner.



Source : Joyce, B and Weil. M : Models of Teaching, Prentice Hall India Limited, New Delhi, 1995, p. 102.

In this study the type of subject matter was the selected areas of environmental education—food and water. Type of instructions were Simple Text (ST) and Programmed Text (PT). Here the term Simple Text means that Portion of the content which constitutes the original matter. Objectives of each research area were selected in behavioural terms.

The process of development of post-literacy material of environmental education has been undertaken in two phases. The procedural strategy is given below which was adopted in completion of the study.

The design of the study is set under the following heads :

FIRST PHASE

The first phase involved :

(A) Preparation of the Programme

(B) Writing the Programme

(A) Preparation of the Programme

Preparation of the programme consists of following steps that may be described as follows :

- (i) Selection of research areas for the proposed post-literacy material.
- (ii) Identification of objectives.
- (iii) Selection of content.
- (iv) Defining objectives in behavioural terms
- (v) Construct a test of Entering Behaviour
- (vi) Construct a test of Terminal Behaviour

(B) Writing the Programme

SECOND PHASE

The second phase involved :

- (i) The sample
- (ii) Tools of the study

- (iii) Selection of experimental design
- (iv) The collection of data
- (v) Scoring
- (vi) Statistical Procedure

(A) Preparation of the Programme

(a) Selection of research areas

The Directorate of Adult Education proposed a plan to prepare post-literacy material for neo-literates, about 100 areas during 1984. The researcher selected two areas Food and Water for the preparation of post-literacy material which is given in Second Phase in the list of Directorate of Adult Education, New Delhi. (Appendix-1).

(b) Identification of Objectives

An objective is the statement that describes what the pupil will do, or be able to do. Every curriculum is intended to achieve certain educational objectives. As far as this study was concerned, the main purpose of this study was to develop knowledge, basic understanding and awareness of the bio-physical environment so that they might be able to solve their environmental problems. The subjects of this study were neo-literates which belonged to the age-group 15-35. Thus keeping in mind about nature, past experiences, interests and needs of the learners, objectives of post-literacy material have been identified. For the identification of the objectives, a preliminary draft containing possible specific objectives of research area 'food' and 'water' was developed by the researcher. 30 objectives for the research area 'food' and 30 objectives for the research area 'water' were kept in preliminary draft. These objectives were related to knowledge, understanding, awareness, attitude and skills of neo-literates. (Appendix-3, A and C Part).

After realising the shortcomings in the preliminary draft, the researcher modified the draft as a whole. In order to explore all the possible situations in systematic manner the objectives were categorised in a hierarchial manner.

Knowledge, understanding, skill and application, 10 or 12 objectives were kept under the each category. (Appendix 4 - A and C Part).

The total number of objectives in each category were as follows :

<i>S.No.</i>	<i>Category</i>	<i>Total Number of Objectives</i>
<i>For research area 'Food'</i>		
1.	Objectives related to knowledge	12
2.	Objectives related to Understanding	11
3.	Objectives related to Skill	11
4.	Objectives related to Application	9
Total number of Objectives		43
<i>For research area 'Water'</i>		
1.	Objectives related to Knowledge	11
2.	Objectives related to Understanding	10
3.	Objectives related to Skill	10
4.	Objectives related to Application	10
Total number of Objectives		41

Thus the final draft containing 43 Objectives for research area 'food' and 41 objectives for research area 'water' was developed by the researcher.

Selection of Content

The term content includes facts, concepts, definition and principles. The content of the curriculum should include those items which are helpful to achieve the educational objectives of the curriculum. In order to fulfil the objectives of the study, content for the research area 'food' and 'water' was selected. First of all suitable topics were selected 23 topics for research area 'food' (Appendix 3 - Part B) and 23 topics for research area 'water' were selected. (Appendix 3 - Part D).

For the specification of each topic the content was arranged in units. 9 Units for the research are 'Food' and 'Water' were selected. In order to cover maximum content of both the research areas, all the units were further divided into 4 or 5 sub-units. Open ended items were kept for the research area 'Food and 'Water'.

In order to improve the selected objectives and content, the researcher submitted the final draft for open criticism and healthy suggestions to the experts, adult education functionaries and researchers. They were requested to rank the selected objectives and to give weightage to each unit to achieve the objectives that they had ranked. Providing an opportunity of open ended item was also given to them to write the content of their own choice. (Appendix 4 - Part B & D)

Defining Objectives in behavioural terms

The most characteristic feature of Programme Text (PT) is its emphasis on the importance of specifying general educational objectives in terms of specific behaviour. Each general objective describes various aspects of the process, covering many points without making them explicit. For the specification of the general objectives, it is essential that objectives must be stated in meaningful terms in the form of observable and measurable behaviours. Meaningful objectives describe the outcomes, depicting what will be the behaviour of the neo-literate as a result of the process.

As far as this study is concerned the objectives selected for each unit for the preparation of the post-literacy material were defined in behavioural terms. These behavioural objectives for each unit were able to explain the final behaviour of the learner that the researcher proposed to develop in neo-literates through Programmed Text (PT). For the development of the Programmed Text (PT), two terms, called 'Task - Description' and 'Task Analysis' were used for writing the objectives in behavioural terms. These two terms need clarification.

TASK DESCRIPTION

'Task Description' explains about the final behaviour of the learner which is known as 'Terminal Behaviour' of the learner. Robert Mager (1962) and Robert Miller (1962), have described the procedure of 'Task Description'. However, Mager's method of describing 'Task Description' is more acceptable to the programmes than that of Miller's procedure. Mager's procedure of 'Task Description' includes the following three ingredients :

- (a) the terminal performance which the programme attempts to produce.

- (b) The condition under which behaviour are to occur.
- (c) criteria of the acceptance of the student's performance.

TASK ANALYSIS

In order to develop terminal behaviour of the learner, it is expected that learner must have mastery over the sub-tasks relevant to the terminal behaviour. For that, task should be analysed before it can be effectively learnt. The 'Task Analysis' identifies the sub-tasks which must be learnt before learning the terminal task. These sub-tasks are identified through 'Task Analysis'. For further clarification of both, examples of 'Task Description' and 'Task Analysis' are given below :-

Task Description

Neo-literates will be able to describe about the meal planning.

Task Analysis

1. Neo-literates will be able to know the importance of the meal planning.
2. Neo-literates will be able to understand that meal planning is helpful in providing balanced diet to family members within limited resources.
3. Neo-literates will be able to prepare meal planning for adequate nutrition within available resources.
4. Neo-literates will be able to improve the health status using meal planning as a means to select proper commodities for regular meal.

Construct of a Test of Entering Behaviour

The entering behaviour describes the position of the learner before entering the programme. The entering behaviour suggest where the student is at the beginning. This behaviour is related to previous experience, aptitude, age, interests, ability and level of

attainment in a particular subject of learners for whom the programme is planned.

In order to know the entering behaviour of the neo-literates, the researcher prepared pre-tests. All the possible items related to different units of research area 'food' and 'water' were kept in pre-tests (Appendix-5)

Construct of a Test of Terminal Behaviour

Terminal behaviour is the end product of the process. This behaviour explains where the learner will be at the end of the process. Terminal behaviour explains about the success of the programme.

For this study the researcher prepared post-test of each unit related to research area 'food' and 'water'. All the items related to each frame were kept in each respective post-test. The main purpose of framing post-test was to check the change of the behaviour of neo-literates.

(B) WRITING THE PROGRAMME

Before constructing the Programme Text (PT) the researcher contacted the adult education officers at their offices and enquired about the material which is being imparted through adult education programme. It was found that the material on research area 'food' and 'water' was not available. The material that was available in adult education centres contained the related concepts in small quantity. Hence, researcher developed the content on 'food' and 'water' in Simple Text (ST) form (Appendix-6). Keeping in mind the basic principles of Programming, the developed content was converted into Programmed Text (PT). The content was thoroughly analysed and divided into meaningful segments called 'Frames'. Each frame was presented with correct and incorrect responses. A space is given with each frame for writing the correct response. Neo-literates were also provided with correct response after each and every frame, so that they could compare their own response with correct response. All the frames were kept in a sequence. To evaluate the effectiveness of the developed 'Programmed Text' evaluative exercise was developed for each and every unit. Each exercise consists of short answers type questions, matching columns and fill in the blanks. (Appendix-7 to 24)

SECOND PHASE

The Sample

The sample of the study consisted of one hundred neo-literates. These neo-literates were selected from the centres running under the scheme of National Literacy Mission in Agra district. The population of the study was not universally distributed, so the Purposive Sampling Method' was used for the sample.

Tools of the Study

The following tools and measures were utilised for the present study :

- (i) Pre-tests of research area 'Food' and 'Water'.
- (ii) Post-tests of each unit related to research area 'Food' and 'Water'. (Appendix-25)
- (iii) Achievement score of the Neo-literate Men and Women of Group A and Group B in the research area of 'Food' and 'Water'.

Measure of Achievement

The achievement of Neo-literates in all the units of research area of 'Food' and 'Water' was measured with the help of achievement tests developed by the researcher. For matching both group A and group B, the researcher prepared two pre-tests, one for the research area of Food and other one in the research area of Water. The researcher adopted the same process for the construction of all tests. The following steps were adopted while developing the tests :

Step-I

The first step of the test construction was the preparation of blueprint of all the tests. While making the blueprints of the tests, all the cognitive aspects of the educational objectives were taken into consideration (Bloom-1960).

Step-II

According to the blueprint, 75 multiple choice items were included in each pre-test in the research area of 'Food' and 'Water'.

In other post-tests of different units, the multiple choice items were varied. In different blueprints, the researcher included 40 items of multiple choices in Unit No.1, 4, 5, 6, 7, 8, 9, and 75 items in Unit No. 2 and 3 in the research area of Water. The researcher also included 40 items in Unit No. 5, 6, 7, 9; 75 items in Unit No. 1, 3; 175 items in Unit No. 2, 4, and 9 in the research area of 'Food'. The language of the items was kept very simple so that there could not be any confusion for the respondents.

Step-III

Now this list of items was given to the senior teachers and adult education functionaries in the field of respective subjects to know their reactions against the items. On the basis of their opinions and suggestions, some of the items of the tests of the different Units in the research area of Food and Water were deleted as they were somewhat vague in nature. 4 items were deleted from the tests which had 40 items, 10 items were deleted from the tests which had 75 items and 15 items were deleted which had 150 items in the blueprints of the different tests.

Step-IV (Try-out)

After excluding vague items, 65 items were left in both the pre-tests, 36 items, 65 items and 135 items were included in other post-tests of different Units in the research area of 'Food' and 'Water'. Each multiple-choice itself had its four alternatives i.e. Ka, Kha, Ga, and Gha. One of them is correct. The respondents had to mark (✓) against right response. Instruction for answering the questions and the approximate time limit were given in the question-booklet. The marks given to the correct response of post-tests of different units of the research area of 'Food' and 'Water' were varied. 1 mark given to the correct response of tests which had 50 items. 2 marks given to the tests which had 25 items and $\frac{1}{2}$ mark given to the tests which had 100 items in the research area of 'Food' and 'Water'. Both the pre-tests in the research area of 'Food' and 'Water' had only 50 items respectively. 1 mark was given to the correct response. Total marks of all tests were 50. The researcher distributed these question

booklets to the neo-literates, and read the instruction written in the question booklet.

Step-V (Item Analysis)

Item analysis was done by taking 27 per cent of the Neo-literate who scored highest and 27 per cent of Neo-literate who scored the lowest. This was done to select the items which discriminate the best among the low and high achievers.

Step-VI (Final Format of the Test)

After item analysis, the researcher included 50 items in both the pre-tests, 25 items in the tests of Unit No.1, 4, 5, 6, 7, 8, and 9 in the research area of 'Water'; and 25 items in the tests of Unit No. 5, 6, 7 and 9; 50 items in the tests of Unit No.1, 3 and 100 items in the tests of Unit No. 2, 4, and 8, in the research area of 'Food' in the field of environmental education.

Reliability

The reliability of the test was calculated by split-half method.

The reliability of both the pre-tests in the research area of food and water were 0.82 and 0.80 respectively. In the research area of 'Food' the reliability of the post-tests were as follows :

Table 4.1

<i>Research area</i> <i>'Food'</i>	<i>Reliability</i>
Unit 1	0.78
Unit 2	0.80
Unit 3	0.79
Unit 4	0.80
Unit 5	0.79
Unit 6	0.81
Unit 7	0.82
Unit 8	0.81
Unit 9	0.79

In the research area of 'Water' the reliability of the tests were as follows :

Table 4.1

<i>Research area 'Food'</i>	<i>Reliability</i>
Unit 1	0.80
Unit 2	0.81
Unit 3	0.82
Unit 4	0.81
Unit 5	0.78
Unit 6	0.83
Unit 7	0.81
Unit 8	0.80
Unit 9	0.81

Validity

The test showed high content validity because the course content was included on the basis of well-prepared programmed text developed by the researcher for the neo-literates in the research area of 'Food' and 'Water' in the field of environmental education.

Selection of Experimental Design

Experimental design is the blue print of the procedures that enable the researcher to test hypothesis by reaching valid conclusions about relationships between independent and dependent variables. Kerlinger (1973) defined research design as "the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and control variance". The plan includes an outline of what the investigator will do from writing the hypothesis to the final analysis of the data. The structure refers to scheme of the operation of variables. The strategy implies how the research objectives will be reached.

Selection of a particular design is based upon the purposes of an experiment, the type of variables to be manipulated, and the conditions, or limiting factors under which it is to be conducted.

Post-Test-Only Control Group Design

For this study, the Post-test only Control Group Design was used. In this experimental design, two groups are involved. Group 'B' receives the experimental treatment while the other Group 'A' does not, and then both groups are post-tested on the dependent variable. Both groups were matched equally on the basis of their entering behaviour of the achievement score of per-test. Some achievement score has been taken for both groups 'A' and 'B'. A diagram of this design is as follows :

Treatment group	$R X_1$	O
Control group	$R X_2$	O

POST-TEST-ONLY CONTROL GROUP DESIGN

Each of group of this consists of 50 neo-literates. The control group was taught through Simple Text (ST). The experimental group was taught through Programmed Text (PT). Post test was given, for each unit of the content covered under research area food and water, to both the groups.

The independent variables in the present study were content in the form Simple Text (ST) and the Programmed Text (PT).

The dependent variables in this study were scored on post-tests.

The entering behaviour of neo-literates was treated as control variables in this study.

Collection of Data

The procedure adopted by the researcher for collection of the data can be summarised in the following lines :

The control and the experimental group selected for the purpose of the research were taught under two settings. The control group was taught by Simple Text (ST) using traditional method of teaching. After teaching each unit of each research area, the progress of the neo-literates for each unit were evaluated through evaluative exercises. After it, post-test was administered on the control group. The neo-literates were requested to give the responses on post-test within the given time. In this manner data were collected from control group.

For experimental group, the researcher gave the Programmed Text (PT) of each unit to each neo-literate. They were introduced

with general rules of the Programmed Text. Neo-literates were requested to read each frame and fill the blank space, given with each frame. They were informed to cover the responses with the help of a card provided by the researcher and remove the card after writing response in blank space. They were also requested to verify their responses, comparing with the correct responses given on the left hand side margin of the next frame. For the adequate revision of the text, an evaluative exercise was also provided to neo-literates. After it a post-test was also administered on experimental group. Neo-literates were requested to give the responses on post-test within the given time.

In this manner, the data of the present study was collected from each unit.

Scoring

The researcher collected the data through post-test for each unit of research areas 'food' and 'water'. Fifty marks were allotted for each post-test. The number of items were not equal in post-test of each unit. There were 25 items, 50 items and 100 items in different units. For the post-test containing 25 items, two marks were given to each item, one mark was given to each item in those post-test which had 50 items, and half mark was given to each item in those post-test which had 100 items for correct responses. The researcher also prepared scoring key for each post-test (Appendix-26). With the help of this scoring key, the researcher, evaluated the achievement scores of group A and group B (Appendix-27).

The researcher provided duration of one minute for each item for giving the correct responses in each post-test. The post-tests containing 25 items were of 25 minutes. The post-test containing 50 items were given 50 minutes and the post-test containing 100 items were given 100 minutes for giving the correct responses by neo-literates.

Statistical Procedure

Mean, S. D. and t-tests were used to analyse the data.

In order to determine the significant differences between the means of the achievement score of different groups of Neo-literate.

Man and Women in the research area of 'Food' and 'Water' taught through Simple Text and Programmed Text, the researcher utilised 't'-test. The 't'-values were computed with the help of the following formula.

$$t' = \frac{M_1 - M_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}$$

(Mc Nemar, 1962, p. 102)

Chapter 5

ANALYSIS OF DATA

In this Chapter the researcher analysed the data of the present study objective wise with their corresponding null hypotheses. For developing this Chapter each objective of the present study has been stated. For this purpose researcher formulated a sub-objective of each unit of research area 'Food' and 'Water'. For testing each sub-objective researcher formulated seven corresponding null hypotheses—relating to each unit in the research area of 'Food' and 'Water'. The main objectives of the present study were as follows :

- (i) To develop the post-literacy material for neo-literates in the area of 'Food' through Programmed Text.
- (ii) To develop the post-literacy material for neo-literates in the area of 'Water' through Programmed Text.
- (iii) To ascertain the effectiveness of the developed post-literacy material for neo-literates in the area of 'Food' taught through Simple Text and Programmed Text.
- (iv) To ascertain the effectiveness of post-literacy material for neo-literates in the area of 'Water' taught through Simple Text and Programmed Text.

Researcher divided the whole research area into different units. Nine Units were in the research area of 'Food' and 'Water' respectively. Therefore, the researcher formulated sub-objective of each unit in both the research areas of 'Food' and 'Water'. In this way the researcher formulated eighteen sub-objectives in both the areas of 'Food' and 'Water'. For justifying these two objectives researcher formulated seven null hypotheses of each unit in the research area of 'Food' and 'Water'. The objective number one and two were based on the experimental treatment.

The researcher divided the achievement score of the neo-literates in the area of 'Food' and 'Water' into two main groups i.e.

achievement score of neo-literate men and achievement score of neo-literate women. These two groups were taught by Simple Text (ST) and Programmed Text (PT). The researcher further divided the achievement score into seven groups for each unit of research area 'Food' and 'Water'.

The whole analysis of the present study is as follows :-

Unit-1 : Food and Health

Sub-Objective No. 1

The researcher formulated sub-objective of Unit No. 1 'Food and Health' in the area of 'Food' which is as follows :

"To ascertain the effectiveness of the developed post-literacy material for neo-literate in 'Food and Health' taught through Simple Text (ST) and Programmed Text (PT)".

The researcher formulated seven corresponding null-hypothesis of this objective which are as follows :

Hypothesis No. 1.1.0

"There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 1.1.0

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT).

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>H o</i>
group A	30	5.65	40	1.86	1%	1.28	R
group B	34	3.64			5%	1.64	R

L.S. = level of significance

t-value = calculated 't'-value

T.V. = Table value of 't' distribution

R = Rejected

The Table 5.1.1.0 shows means, S.Ds. and t-value for the achievement score of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT) respectively. The calculated value of 't' test (1.86) is greater than the table value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT). The mean of the achievement score of neo-literate men and women of group B (34) is greater than the mean of the achievement score of neo-literate men and women of group A (30).

Hypothesis No. 1.1.1

"There will be no significant difference between the achievement of neo-literate men of group B neo-literate women of group A taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.1.1

Means, S.Ds and t-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Women)	33.63	3.67			1%	1.32	R
			19	3.49			
group B (Men)	27.30	4.52			5%	1.72	R

Table 5.1.1.1 shows means, SDs and t-value for the achievement score of neo-literate women of group A and neo-literate men of group B taught through S.T. and P.T. respectively. The calculated value of 't'-test (3.49) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both

the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and neo-literate men of group B taught through S.T. and P.T. The mean of the achievement score of neo-literate women of group A (33.63) is greater than the mean of the achievement score of neo-literate men of group B (27.30).

Hypothesis No. 1.1.2

"There will be no significant difference between the achievement of neo-literate men of group A and neo-literate women of group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.1.2

Means, S.Ds. and 't' value for the achievement score of neo-literate men of group A and neo-literate women of group B taught through ST and PT

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>'t' value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Men)	31.63	5.84			1%	1.32	R
			19	4.20			
group B (Women)	34.8	3.62			5%	1.72	R

The Table 5.1.1.2 shows means, SDs and 't' value for the achievement score of neo-literate men of group A and neo-literate women of group B taught through ST and PT respectively. The calculated value of 't'-test (4.20) is greater than tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of the achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (34.8) is greater than the mean of the achievement score of neo-literate men of group A (31.63).

Hypothesis No. 1.1.3

"There will be no significant difference between the achievement of neo-literate men and neo-literate women of group A taught through Simple Text (ST)".

Table 5.1.1.3

Means, S.Ds and 't' value for the achievement score of neo-literate men and women of group A taught through Simple Text

<i>group A</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>'t' value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	31.63	5.84	19	0.84	1%	1.32	A
Women	27.30	4.52			5%	1.72	A

The Table 5.1.1.3 shows means SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST. The calculated value of 't'-test (0.84) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of the achievement score of neo-literate men and women of group A taught through ST. However, the mean of the achievement score of neo-literate men (31.63) is greater than neo-literate women (27.30) of group A.

Hypothesis No. 1.1.4

"There will be no significant difference between the achievement of neo-literate Men and Women of group B taught through Programmed Text (PT)".

Table 5.1.1.4

Means, S.Ds and 't'-value for the achievement score of neo-literate Men and Women of group B taught through Programmed Text

<i>group B</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>'t'-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	33.63	3.67	19	0.53	1%	1.32	A
Women	34.80	3.62			5%	1.72	A

Table 5.1.1.4 shows Means, SDs and 't' value for the achievement score of Neo-literate Men and Women of group B taught through Programmed Text. The tabulated value of 't'-test (0.53) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of the achievement score of Neo-literate men and women of group B taught through Programmed Text. The mean of the achievement score of neo-literate women (34.80) is not more greater than men (33.63) of group B.

Hypothesis No. 1.1.5

"There will be no significant difference between the achievement of neo-literate Women of group A and group B taught through Simple Text. (ST) and Programmed Text (PT)".

Table 5.1.1.5

Means, SDs and 't'-value for the achievement score of neo-literate Women of group A and group B taught through ST and PT

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>'t' value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	27.30	4.52	18	4.09	1%	1.33	R
group B	34.80	3.62			5%	1.73	R

Table 5.1.1.5 shows Means, SDs and 't'-value for the achievement score of neo-literate Women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (4.09) is greater than the tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the achievement of neo-literate women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (34.80) is greater than the mean of the achievement score of neo-literate women of group A (27.30).

Hypothesis No. 1.1.6

"There will be no significant difference between the achievement of Neo-literate Men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.1.1.6

Means, SDs and 't'-value for the achievement score of neo-literate Men of group A and group B taught through ST and PT

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>'t'-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	31.63	5.84	20	0.46	1%	1.32	A
group B	33.63	3.67			5%	1.72	A

Table 5.1.1.6 shows Means, SDs and 't'-value for the achievement score of neo-literate Men of group A and group B taught through ST and PT respectively. The calculated value of 't' test (0.46) is less than the tabulated value i.e. 1.32 and 1.72 respectively at both the levels of significance. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of the achievement score of neo-literate men of group A and group B taught through ST and PT. However, the mean of the achievement score of neo-literate men of group B (33.63) is greater than group A (31.63).

Unit-2 : Balanced Diet*Sub-Objective No. 2*

The researcher formulated sub-objective of Unit No. 2 'Balanced Diet' in the area of "Food" which is as follows :

"To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Balanced Diet' taught through Simple Text (ST) and Programmed Text (PT)".

The researcher formulated seven corresponding null-hypothesis of this objective which are as follows :

Hypothesis No. 1.2.0

"There will be no significant difference between the achievement of Neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.1.2.0

Means, S.Ds and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>H o</i>
group A	23.33	5.04	40	6.51	1%	1.28	R
group B	31.19	5.85			5%	1.64	R

Table 5.1.2.0 shows Means, SDs, and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (6.51) is greater than the table value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is significant difference between the means of achievement score of neo-literate men and women of group A and group B taught through ST and PT. The mean of the achievement score of men and women of group B (31.19) is greater than the Mean of the achievement score of neo-literate men and women of group A (23.33).

Hypothesis No. 1.2.1

"There will be no significant difference between the achievement of neo-literate men of group B and women of group A taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.2.1

Means, SDs and 't'-value for the achievement score of neo-literate Women of group A and Men of group B taught through ST and PT

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Women)	25.10	5.06	19	1.89	1%	1.32	R
group B (Men)	29.90	6.50			5%	1.72	R

Table 5.1.2.1 shows Means, SDs, and 't'-value for the achievement score of neo-literate Women of group A and men of group B taught through ST and PT respectively. The calculated value of 't'-test (1.89) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and men of group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B is (29.90) is greater than the Mean of the achievement score of neo-literate women of group A (25.10).

Hypothesis No. 1.2.2

"There will be no significant difference between the achievement of neo-literate men of group A and Women of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.1.2.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and Women of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	21.70	4.49			1%	1.32	R
(Men)			19	4.90			
group B	32.60	5.60			5%	1.72	R
(Women)							

Table 5.1.2.2 shows Means, SDs and 't'-value for the achievement score of neo-literate men of group A, Women of group B taught through ST and PT respectively. The calculated value of 't'-test (4.90) is greater than the tabulated value 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A, Women of group

B taught through Simple Text (ST) and Programmed Text (PT). The mean of the achievement score of neo-literate women of group B (32.60) is greater than the mean of the achievement score of neo-literate men of group A (21.70).

Hypothesis No. 1.2.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)".

Table 5.1.2.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST

<i>group A</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	21.70	4.49	19	1.62	1%	1.32	R
Women	25.10	5.06			5%	1.72	A

Table 5.1.2.3 shows Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text (ST). The calculated value of 't'-test (1.62) is greater than tabulated value (1.32) for 19 degrees of freedom at 1 per cent level of significance but is less than the table value (1.72) at 5 per cent level of significance. The null-hypothesis is rejected at 1 per cent level of significance and is accepted at 5 per cent level of significance. There is a significant difference between the means achievement score of neo-literate men and women at 5 per cent level of significance and is no significant difference between the achievement of neo-literate Men and Women of group B at 5 per cent level of significance. The mean of the achievement score of neo-literate women (25.10) is greater than the mean of the achievement score of neo-literate Men (21.70) of group A.

Hypothesis No. 1.2.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programmed Text (PT)".

Table 5.1.2.4

Means, SDs and 't'-value for the achievement score of neo-literate men and Women of group B taught through P.T.

group B	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
Men	29.90	6.50	19	1.02	1%	1.32	A
Women	32.6	5.60			5%	1.72	A

Table 5.1.2.4 shows Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text (PT). The calculated value of 't'-test (1.02) is less than the table value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of the achievement score of neo-literate men and women of group B taught through Programmed Text (PT). However, the mean of the achievement score of women (32.6) is greater than the mean of the achievement score of Men (29.90) of group B.

Hypothesis No. 1.2.5

"There will be no significant difference between the achievement of neo-literate Women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.1.2.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT

Women	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	25.10	5.06	18	3.15	1%	1.33	A
group B	32.60	5.60			5%	1.73	A

Table 5.1.2.5 shows Means, SDs and 't'-value for the achievement score of neo-literate Women of group A and group B taught through ST and PT respectively. The calculated value of 't'-

test (3.15) is greater than the table value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance, respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate Women of group B (32.60) is greater than the mean of the achievement score of neo-literate women of group A (25.10).

Hypothesis No. 1.2.6

"There will be no significant difference between the achievement of men of group A and group B taught through simple Text (ST) and Programmed Text (PT)".

Table 5.1.2.6

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	21.7	4.49	20	3.44	1%	1.32	R
group B	29.90	6.50			5%	1.72	R

Table 5.1.2.6 shows Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT. The calculated value of 't'-test (3.44) is greater than the table value i.e. 1.32 and 1.72 for 20 degrees of freedom 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (29.90) is greater than the Mean of the achievement score of neo-literate men of group A (21.7).

Unit-3 : Healthy Cooking

Sub-Objective No. 3

The researcher formulated sub-objective of Unit No. 3 'Healthy Cooking' in the area of 'Food' which is as follows :

"To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Healthy Cooking' taught through Simple Text (ST) and Programmed Text (PT)."

The researcher formulated seven corresponding null-hypothesis of this objective which are as follows :

Hypothesis No. 1.3.0

"There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.1.3.0

Means, SDs and 't'-value for the achievement score of neo-literate of group A and group B taught through ST and PT

Men and Women	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	26.14	4.10	40	4.82	1%	1.28	R
group B	33.52	5.72			5%	1.64	R

Table 5.1.3.0 shows means, SDs and 't'-value for the achievement score of neo-literates of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (4.82) is greater than tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literates of group A and group B. The mean of the achievement score of the neo-literates of group B (33.52) is greater than the mean of the achievement score of neo-literates of group A (26.14).

Hypothesis No. 1.3.1

"There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.3.1

Means, SDs, and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Women)	24	3.68			1%	1.32	R
			19	3.62			
group B (Men)	32.81	6.24			5%	1.72	R

Table 5.1.3.1 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT respectively. The calculated value of 't'-test (3.62) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and men of group B. The mean of the achievement score of neo-literate men of group B (32.81) is greater than the mean of the achievement score of neo-literate women of group A (24).

Hypothesis No. 1.3.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.1.3.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Men)	26.90	3.91			1%	1.32	R
			19	2.65			
group B (Women)	33.3	6.67			5%	1.72	R

Table 5.1.3.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (2.65) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. There is a significant difference between the means of achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The mean of the achievement score of neo-literate women of group B (33.3) is greater than the mean of the achievement score of neo-literate men of group A (26.90).

Hypothesis No. 1.3.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)."

Table 5.1.3.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text (ST)

<i>group A</i>	<i>Means</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	26.90	3.91	19	1.75	1%	1.32	R
Women	24	3.68			5%	1.72	R

Table 5.1.3.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text. The calculated value of 't'-test (1.75) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. However, the calculated value of 't'-test is slightly greater than the tabulated value. There is a significant difference between the means of achievement score of neo-literate men and women of group A. The mean of the achievement score of neo-literate men (26.90) is greater than the mean of the achievement score of neo-literate women of group A (24).

Hypothesis No. 1.3.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programmed Text".

Table 5.1.3.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text (PT)

<i>group B</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	32.81	6.24	19	0.17	1%	1.32	A
Women	33.3	6.67			5%	1.72	A

Table 5.1.3.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text. The calculated value of 't'-test (0.17) is less than the tabulated value i.e. 1.32 and 1.72 of 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group B taught through Programmed Text. The mean of the achievement score of neo-literate women (33.3) is slightly greater than the mean of the achievement score of neo-literate men (32.81) of group B.

Hypothesis No. 1.3.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.3.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group, B taught through Simple Text (ST) and Programmed Text (PT)

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	24	3.68	18	3.84	1%	1.33	R
group B	33.3	6.67			5%	1.73	R

Table 5.1.3.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (3.84) is greater than the tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and group B. The mean of the achievement score of the neo-literate women of group B (33.3) is greater than the mean of the achievement score of neo-literate women of group A (24).

Hypothesis No. 1.3.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.3.6

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	26.9	3.91	19	2.66	1%	1.33	R
group B	32.81	6.24			5%	1.73	R

Table 5.1.3.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (2.66) is greater than the tabulate value i.e. 1.33 and 1.73 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (32.81) is greater than group A (26.90).

Unit-4 : Digestive System*Sub-Objective No. 4*

The researcher formulated sub-objective of Unit No. 4 'Digestive System' in the area of 'Food' which is as follows :

"To ascertain the effectiveness of developed post-literacy material for neo-literates in 'Digestive System' taught through Simple Text (ST) and Programmed Text (PT)".

Hypothesis No. 1.4.0

The researcher formulated seven corresponding null-hypothesis of this objective which are as follows :

"There will be no significant difference between the achievement of neo-literates of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.4.0

Means, SDs and 't'-value for the achievement score of neo-literates of group A and group B taught through ST and PT

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	27.14	5.13	40	2.21	1%	1.28	R
group B	31	6.20			5%	1.64	R

Table 5.1.4.0 shows means, SDs and t-value for the achievement score of neo-literate of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (2.21) is greater than the tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literates of group A and group B taught through ST and PT. The mean of the achievement score of neo-literates of group B (31) is greater than the mean of the achievement score of neo-literates of group A (27.14).

Hypothesis No. 1.4.1

"There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.1.4.1

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Women)	27.5	5.9	19	0.75	1%	1.33	A
group B (Men)	29.45	6.01			5%	1.73	A

Table 5.1.4.1 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT respectively. The calculated value of 't'-test (0.75) is less than the tabulated value 1.33 and 1.73 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. There is no significant difference between the means of achievement score of neo-literate women of group A and men of group B. The mean of the achievement score of neo-literate men of group B (29.45) is slightly greater than the mean of achievement score of the neo-literate women of group A (27.5).

Hypothesis No. 1.4.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT).

Table 5.1.4.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Men)	26.81	4.33	19	2.95	1%	1.33	R
group B (Women)	33.7	6.13			5%	1.73	R

Table 5.1.4.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (2.95) is greater than the tabulated value i.e. 1.33 and 1.73 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (33.7) is greater than the mean of the achievement score of neo-literate men of group A (26.81).

Hypothesis No. 1.4.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)."

Table 5.1.4.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST

<i>group A</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	26.81	4.33	19	0.30	1%	1.33	A
Women	27.50	5.90			5%	1.73	A

Table 5.1.4.3 shows means, SDs and t-value for the achievement score of neo-literate men and women of group A taught through ST. The calculated value of 't'-test (0.30) is less than the tabulated value i.e. 1.33 and 1.73 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group A. The mean of the achievement score of neo-literate women (27.50) is slightly greater than the mean of the achievement score of neo-literate men (26.81) of group A.

Hypothesis No. 1.4.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programmed Text (PT)."

Table 5.1.4.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT

group B	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
Men	29.45	6.01	19	1.63	1%	1.32	R
Women	33.7	6.13			5%	1.72	A

Table 5.1.4.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT. The calculated value of 't'-test (1.63) is greater than the tabulated value (1.32) at 1 per cent level of significance and is less than tabulated value (1.72) at 5 per cent level of significance for 19 degrees of freedom. The null-hypothesis is rejected at 1 per cent and is accepted at 5 per cent levels of significance. There is a significant difference between the achievement of neo-literate men and women of group B at 1 per cent level of significance but there is no significant difference between the means of achievement score of neo-literate men and women of group B taught through Programmed Text at 5 per cent level of significance. The mean of the achievement score of neo-literate women (33.7) is greater than men (29.45) of group B.

Hypothesis No. 1.4.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.4.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT

Women	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	27.5	5.9	18	2.30	1%	1.33	R
group B	33.7	6.13			5%	1.73	R

Table 5.1.4.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (2.30) is greater than tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and group B. The mean of the achievement score of neo-literate women of group B (33.7) is greater than the mean of the achievement score of neo-literate women of group A (27.5).

Hypothesis No. 1.4.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.4.6

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT

Men	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	26.81	4.33	20	1.18	1%	1.32	A
group B	29.45	6.01			5%	1.72	A

Table 5.1.4.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (1.18) is less than the tabulated value i.e. 1.32 and 1.72 for 20 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men of group A and group B (29.45). The mean of the achievement score of neo-literate is greater than the mean of the achievement score of neo-literate men of group A (26.81).

Unit-5 : Mal Nutrition*Sub-Objective No. 5*

The researcher formulated sub-objective of Unit No. 5 'Mal Nutrition' in the area of 'Food' which is as follows :

"To determine the effectiveness of the post-literacy material for neo-literates in 'Mal-Nutrition' taught through Simple Text (ST) and Programmed Text (PT)."

Hypothesis No. 1.5.0

The researcher formulated seven corresponding null-hypothesis of this objective which are as follows :

"There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".

Table 5.1.5.0

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	25.04	5	40	2.88	1%	1.28	R
group B	32.76	5.59			5%	1.64	R

Table 5.1.5.0 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test is 2.88 is greater than the tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT). The mean of the achievement score of neo-

literate men and women of group B (32.76) is greater than the mean of the achievement score of neo-literate men and women of group A (25.04).

Hypothesis No. 1.5.1

"There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.5.1

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Women)	25.7	4.46			1%	1.28	R
			19	3.81			
group B (Men)	33.72	5.55			5%	1.64	R

Table 5.1.5.1 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT) respectively. The calculated value of 't'-test (3.81) is greater than the tabulated value i.e. 1.28 and 1.64 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT). The mean of the achievement score of neo-literate men of group B (33.72) is greater than the mean of the achievement score of neo-literate women of group B (25.70).

Hypothesis No. 1.5.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.5.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	24.45	5.68			1%	1.32	R
(Men)			19	3.02			
group B	31.70	5.37			5%	1.72	R
(Women)							

Table 5.1.5.2. shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text. The calculated value of 't'-test is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of group B taught through Simple Text and Programmed Text. The mean of the achievement score of neo-literate women of group B (31.70) is greater than the mean of the achievement score of neo-literate men (24.45) of group A.

Hypothesis No. 1.5.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)".

Table 5.1.5.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text (ST)

group A	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
Men	24.45	5.68			1%	1.32	A
			19	0.59			
Women	25.70	4.46			5%	1.72	A

Table 5.1.5.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text (ST). The calculated value of 't'-test (0.59) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group A taught through Simple Text (ST). The mean of the achievement score of neo-literate women (25.7) is slightly greater than the mean of the achievement score of neo-literate men of group A (24.45).

Hypothesis No. 1.5.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught Programmed Text (PT)."

Table 5.1.5.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text (PT)

<i>group B</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	33.72	5.55	19	0.84	1%	1.32	A
Women	31.70	5.37			5%	1.72	A

Table 5.1.5.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text (PT). The calculated value of 't'-test (0.84) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group B taught through Programmed Text (PT). The mean of the achievement score of neo-literate men (33.72) is slightly greater than the mean of the achievement score of neo-literate women (31.70) of group B.

Hypothesis No. 1.5.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple text (ST) and Programmed Text (PT)."

Table 5.1.5.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through Simple Text (ST) Programmed Text (PT)

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	25.7	4.46	18	2.75	1%	1.33	R
group B	31.7	5.37			5%	1.73	R

Table 5.1.5.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT) respectively. The calculated value of 't'-test (2.75) is greater than the tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT). The mean of the achievement score of neo-literate women of group B (31.70) is greater than the mean of the achievement score of women of group A (25.70).

Hypothesis No. 1.5.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple text (ST) and Programmed Text (PT)."

Table 5.1.5.6

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through Simple Text (ST) Programmed Text (PT)

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	24.45	5.68	20	3.89	1%	1.32	R
group B	33.7	5.55			5%	1.72	R

Table 5.1.5.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT) respectively. The calculated value of 't'-test (3.89) is greater than the tabulated value i.e. 1.32 and 1.72 for degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text. The mean of the achievement score of neo-literate men of group B (33.72) is greater than the mean of the achievement score of neo-literate men of group A (24.45).

Unit-6 : Vitamins

The researcher formulated sub-objective of Unit No. 6 'Vitamins' in the area of 'Food' which is as follows :-

Sub-Objective No. 6

"To ascertain the effectiveness of developed post-literacy material for neo-literates in 'Vitamins' taught through Simple Text (ST) and Programmed Text (PT)."

The researcher formulated seven corresponding null hypotheses of this objective which are as follows :

Hypothesis No. 1.6.0

"There will be no significant difference between the achievement of neoliterates of group A group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.6.0

Mean, SDs and 't'-value for the achievement score of neo-literates of group A and group B taught through Simple Text (ST) and Programmed Text (PT)

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	25.33	4.06	40	5.40	1%	1.28	R
group B	34.75	7.09			5%	1.64	R

Table 5.1.6.0 shows means, SDs and 't'-value for the achievement score of neo-literates of group A and group B taught through Simple Text (ST) and Programmed Text (PT). The calculated value of 't'-test (5.40) is greater than the tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between means of the achievement score of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT). The mean of the achievement score of neo-literate of group B (34.75) is greater than the mean of the achievement score of neo-literates of group A (25.33).

Hypothesis No. 1.6.1

"There will be no significant difference between the achievement of Women of group A and neo-literate of group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.6.1

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	HO
group A (Women)	24.4	4.53			1%	1.32	R
			19	7.56			
group B (Men)	38.54	4.02			5%	1.72	R

Table 5.1.6.1 indicates means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT). The calculated value of 't'-test (7.56) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate

women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT). The mean achievement score of neo-literate men of group B (38.54) is greater than the mean of the achievement score of neo-literate women of group A (24.4).

Hypothesis No. 1.6.2

“There will be no significant difference between the achievement of neo-literate men of group A and neo-literate women of group B taught through Simple Text (ST) and Programmed Text (PT).”

Table 5.1.6.2

Means, SDs and ‘t’-value for the achievement score of neo-literate men of group A and neo-literate women of group B taught through Simple Text (ST) and Programmed Text (PT)

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Men)	26.18	3.35			1%	1.32	R
			19	1.9			
group B (Women)	31	7.52			5%	1.72	R

Table 5.1.6.2 shows means, SDs and ‘t’-value for the achievement score of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT) respectively. The calculated value of ‘t’-test (1.90) is greater than tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and women of group B. The mean of the achievement score of neo-literate women of group B (31) is greater than neo-literate men of group A (26.18).

Hypothesis No. 1.6.2

“There will be no significant difference between the achievement of neo-literate men of group A and neo-literate women of group B taught through Simple Text (ST)”.

Table 5.1.6.3

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and neo-literate women of group B taught through Simple Text (ST)

group A	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
Men	26.18	3.35	19	0.93	1%	1.32	A
Women	24.40	4.53			5%	1.72	A

Table 5.1.6.3 shows means, SDs and 't'-value for the achievement score of neo-literates men and women of group A. It is indicated from the table that the calculated value of 't'-test (0.93) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The formulated null hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and neo-literate women of group A. There is a slightly difference between the mean of the achievement score of neo-literate men (26.18) and neo-literate women (24.40) of group A.

Hypothesis No. 1.6.4

"There will be no significance difference between the achievement of neo-literate men and women of group B taught through Programmed Text (PT)".

Table 5.1.6.4

Means, SDS and 't'-value for the achievement score of neo-literate men and women of group B taught Programmed Text (PT)

Group B	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
Men	38.54	4.02	19	3.48	1%	1.32	R
Women	31	7.52			5%	1.72	R

Table 5.1.6.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught

through Programmed Text (PT). The table indicates that the calculated value of 't'-test (3.48) is greater than tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance, respectively. The null hypothesis is rejected at both the levels of significant. There is a significance difference between the means of achievement score of neo-literate men and women of group B. The mean of the achievement score of neo-literate men (38.54) is greater than the mean of the achievement score of neo-literate women (31) of group B.

Hypothesis No. 1.6.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.6.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)"

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Group A	24.4	4.53	18	2.38	1%	1.33	R
group B	31	7.52			5%	1.73	R

The table 1.6.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT) respectively. The calculated value of 't'-test (2.38) is greater than the tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significance difference between the means of achievement score of neo-literate women of group A and group B. The mean of the achievement score of neo-literate women of group B (31) is greater than the mean of the achievement score of neo-literate women of group A (24.4).

Hypothesis No. 1.6.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.6.6

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	26.18	3.35	20	7.87	1%	1.32	R
group B	38.54	4.02			5%	1.72	R

Table 5.1.6.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT) respectively. The calculated value of 't'-test (7.87) is greater than the tabulated value i.e. 1.32 and 1.72 for 20 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT).

Unit-7 : Meal Planning

The researcher formulated sub-objective for Unit No. 7 'Meal Planning' in the area of 'Food' which is as follows :

Sub-Objective No. 1.7.0

"To ascertain the effectiveness of the post-literacy material developed for neo-literates in 'Meal Planning' taught through Simple Text (ST) and Programmed Text (PT)."

The researcher formulated seven corresponding null hypotheses of this objective which are as follows :

Hypothesis No. 1.7.0

"There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.7.0

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	23.71	4.14	40	4.2	1%	1.28	R
group B	31.28	7.15			5%	1.64	R

Table 5.1.7.0 shows Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (4.2) is greater than the tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significance difference between the means of achievement score of neo-literate men and women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men and women of group B (31.28) is greater than group A (23.71).

Hypothesis No. 1.7.1

"There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.7.1

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Women)	24.10	4.3	19	3.42	1%	1.32	R
group B (Men)	33.27	7.68			5%	1.72	R

Table 5.1.7.1 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT respectively. The calculated value of 't'-test (3.42) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and men of group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (33.27) is greater than women of group A (24.10).

Hypothesis No. 1.7.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.1.7.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A							
(Men)	23.36	3.86			1%	1.32	R
			19	3.29			
group B							
(Women)	29.10	4.11			5%	1.72	R

Table 5.1.7.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (3.29) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is reflected at both the levels of significance. There is a significant difference between

the means of achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (29.10) is greater than the men of group A (23.36).

Hypothesis No. 1.7.3

"There will be significant difference between the achievement neo-literate men and women of group a taught through simple text (ST)".

Table 5.1.7.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text (ST)

<i>Group A</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	33.27	7.68	19	3.42	1%	1.32	R
Women	24.10	4.30			5%	1.72	R

Table 5.1.7.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text (ST). The calculated value of 't'-test (3.42) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A taught through ST. The mean of the achievement score of men (33.27) is greater than women (24.10) of group A.

Hypothesis No. 1.7.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programmed Text (PT)."

Table 5.1.7.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text (PT)

<i>Group B</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	33.27	7.68	19	1.57	1%	1.32	R
Women	29.1	4.11			5%	1.72	A

Table 5.1.7.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text (PT). The calculated value of 't'-test (1.57) is greater than tabulated value (1.32) and is less than tabulated value (1.72) for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at 1 per cent and is accepted at 5 per cent level of significance. There is a significant difference at 1 per cent level and is no significant difference at 5 per cent level, between the means of achievement score of neo-literate men and women of group B taught through PT. The mean of the achievement score of neo-literate men (33.27) is greater than women (29.1) of group B.

Hypothesis No. 1.7.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.7.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	24.10	4.30	19	2.65	1%	1.33	R
group B	29.10	4.11			5%	1.73	R

Table 5.1.7.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (2.65) is greater than the tabulated i.e. 1.33 and 1.73 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (29.10) is greater than women of group A (24.10).

Hypothesis No. 1.7.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.7.6

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	23.36	3.86	20	3.82	1%	1.32	R
group B	33.27	7.68			5%	1.72	R

Table 5.1.7.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (3.82) is greater than the tabulated value i.e. 1.32 and 1.72 for 20 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (33.27) is greater than group A (23.36).

Unit-8 : Special Diet

The researcher formulated sub-objective for Unit No. 8 'Special Diet' which is as follows :

Sub-Objective No. 8

"To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Special Diet' taught through Simple Text (ST) and Programmed Text (PT)."

The researcher formulated seven corresponding null hypotheses of this objective which are as follows :

Hypothesis No. 1.8.0

"There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.8.0

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	21.86	3.14	40	6.89	1%	1.8	R
group B	32.05	6			5%	1.64	R

Table 5.1.8.0 shows means, SDs and 't'-value for the achievement score of men and women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (6.89) is greater than tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate of group B (32.05) is greater than group A (21.86).

Hypothesis No. 1.8.1

"There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.8.1

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Women)	22.3	3.99			1%	1.32	R
			19	5.68			
group B (Men)	34	5.39			5%	1.72	R

Table 5.1.8.1 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT respectively. The calculated value of 't'-test (5.68) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and men of group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (34) is greater than the mean of the achievement score of neo-literate women of group A (22.30).

Hypothesis No. 1.8.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.8.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Men)	21.73	2.09	19	4.15	1%	1.32	R
group B (Women)	29.90	5.89			5%	1.72	R

Table 5.1.8.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (4.15) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of women of group B (29.90) is greater than the mean of the achievement score of neo-literate men of group A (21.73).

Hypothesis No. 1.8.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)."

Table 5.1.8.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A Men	21.73	2.09	19	0.27	1%	1.32	A
Women	22.30	3.99			5%	1.72	A

Table 5.1.8.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text (ST). The calculated value of 't'-test (0.27) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group A taught through Simple Text (ST). The mean of the achievement score of women (22.30) is not much greater than men of group A (21.73).

Hypothesis No. 1.8.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programmed Text (PT)."

Table 5.1.8.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text (PT)

<i>Group B</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	34	5.39	19	1.66	1%	1.32	R
Women	29.9	5.89			5%	1.72	A

Table 5.1.8.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT. The calculated value of 't'-test (1.66) is greater than tabulated value (1.32) at 1 per cent level and is less than tabulated value (1.72) at 5 per cent level of significance for 19 degrees of freedom. The null hypothesis is rejected at 1 per cent and is accepted at 5 per cent level of significance for 19 degrees of freedom. The null hypothesis is rejected at 1 per cent and is accepted at 5 per cent level of significance. There is a significant difference at 1 per cent and there is no significant difference at 5 per cent level of significance between the means of achievement score of neo-literate men and women of group B. The mean of the achievement score of neo-literate men and women of group B. The mean of the achievement score of neo-literate men (34) is greater than mean of the achievement score of women of group B (29.9).

Hypothesis No. 1.8.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.8.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>LS.</i>	<i>T.V.</i>	<i>Ho</i>
group A	22.30	3.99	18	3.38	1%	1.33	R
group B	29.90	5.89			5%	1.73	R

Table 5.1.8.5 shows means, SDs and 't'-value for the achievement of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (3.38) is greater than the tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (29.90) is greater than women of group A (22.30).

Hypothesis No. 1.8.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.8.6

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	21.73	2.09	20	7.05	1%	1.32	R
group B	34	5.39			5%	1.72	R

Table 5.1.8.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (7.05) is greater than the tabulated value i.e. 1.32 and 1.72 for 20 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (34) is greater than the mean score of neo-literate men of group A (21.73).

Unit-9 : Food Storage and Preservation

The researcher formulated sub-objective of Unit No. 9 'Food Storage and Preservation' in the area of 'Food' which is as follows :

Sub-Objective No. 9

"To ascertain the effectiveness of post-literacy material for neo-literates in 'Food Storage and Preservation' taught through Simple Text (ST) and Programmed Text (PT)."

The researcher formulated seven corresponding null hypotheses of this objective which are as follows :

Hypothesis No. 1.9.0

"There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.9.0

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT

Men and Women	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	24.14	3.30	40	5.63	1%	1.28	R
group B	33.14	6.53			5%	1.64	R

Table 5.1.9.0 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (5.63) is greater than the tabulated value i.e. 1.28 and 1.68 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men and women of group B (33.14) is greater than the mean of the achievement score of neo-literate men and women of group A (24.14).

Hypothesis No. 1.9.1

"There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.9.1

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Women)	23.7	2.74	19	4.13	1%	1.32	R
group B (Men)	33.73	7.54			5%	1.72	R

Table 5.1.9.1 shows means, SDs and 't'-value for the achievement of neo-literate women of group A and men of group B taught through ST and PT respectively. The calculated value of 't'-test (4.13) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significance difference between the means of achievement score of neo-literate women of group A and

men of group B taught through ST and PT. The mean achievement score of neo-literate men of group B (33.73) is greater than the mean achievement score of neo-literate women of group A (23.7).

Hypothesis No. 1.9.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.1.9.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Men)	24.55	3.79			1%	1.32	R
			19	3.77			
group B (Women)	32.50	5.61			5%	1.72	R

Table 5.1.9.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (3.77) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (32.50) is greater than the mean of the achievement score of neo-literate men of group A (24.55).

Hypothesis No. 1.9.3

"There will be no significance difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)."

Table 5.1.9.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text (ST)

group A	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
Men	24.55	3.79	19	0.59	1%	1.32	A
Women	23.70	2.74			5%	1.72	A

Table 5.1.9.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST. The calculated value of 't'-test (0.59) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance. The null hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group A taught through ST. The mean of the achievement score of neo-literate men (24.55) is slightly greater than the mean of the achievement score of neo-literate women of group A (23.70).

Hypothesis No. 1.9.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programmed Text (PT)".

Table 5.1.9.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text (PT)

group B	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
Men	33.73	7.54	19	0.43	1%	1.32	A
Women	32.50	5.61			5%	1.72	A

Table 5.1.9.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught

through PT. The calculated value of 't'-test (0.43) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance. The null hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group B taught through PT. The mean of the achievement score of neo-literate men (33.73) is slightly greater than the mean of the achievement score of neo-literate women of group B (32.5).

Hypothesis No. 1.9.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.1.9.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	23.7	2.74	18	4.47	1%	1.33	R
group B	32.5	5.61			5%	1.73	R

Table 5.1.9.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (4.47) is greater than the tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and group B. The mean of the achievement score of neo-literate women of group B (32.5) is greater than the mean of the achievement score of neo-literate women of group A (23.7).

Hypothesis No. 1.9.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.1.9.6

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT

Men	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	24.55	3.79	20	4.91	1%	1.32	R
group B	33.73	7.54			5%	1.72	R

Table 5.1.9.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (4.91) is greater than the tabulated value i.e. 1.32 and 1.72 for 20 degrees of freedom at 1 per cent and 5 per cent levels of significance. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and group B. The mean of the achievement score of neo-literate men of group B (33.73) is greater than the mean of the achievement score of neo-literate men of group A (24.55).

RESEARCH AREA 'WATER'

Unit-1 : Drinking Water

The researcher formulated sub-objective of Unit No. 1 'Drinking Water' in the area of 'water' which is as follows :

Sub-Objective No. 1

"To ascertain the effectiveness of developed post-literacy material in 'Drinking Water' taught through Simple Text (ST) and Programmed Text (PT)".

The researcher formulated seven corresponding null hypothesis of this objective which are as follows :

Hypothesis No. 2.1.0

"There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.1.0

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	22.19	2.51	40	8.24	1%	1.28	R
group B	32.90	5.41			5%	1.64	R

Table 5.2.1.0 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (8.24) is greater than the tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men and women of group B (32.90) is greater than the mean of the achievement score of neo-literate men and women of group A (22.19).

Hypothesis No. 2.1.1

"There will be no significance difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.1.1

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Women)	22.60	2.53	19	6.33	1%	1.32	R
group B (Men)	33.55	5.10			5%	1.72	R

Table 5.2.1.1 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT respectively. The calculated value of 't'-test (6.33) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and men of group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (33.55) is greater than the mean of the achievement score of neo-literate women of group A (22.60).

Hypothesis No. 2.1.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.1.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT

Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Men)	21.82	2.43		1%	1.32	R
			19 5.35			
group B (Women)	32.20	5.69		5%	1.72	R

Table 5.2.1.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (5.35) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of

achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (32.20) is greater than the mean of the achievement score of neo-literate men of group A (21.82).

Hypothesis No. 2.1.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)".

Table 5.2.1.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST

<i>group A</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	21.82	2.43	19	0.72	1%	1.32	A
Women	22.6	2.53			5%	1.72	A

Table 5.2.1.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST. The calculated value of 't'-test (0.72) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group A taught ST. The mean of the achievement score of women (22.60) is slightly greater than the mean of the achievement score of neo-literate men (21.82) of group A.

Hypothesis No. 2.1.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programmed Text (PT)".

Table 5.2.1.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT

group B	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
Men	33.55	5.10	19	0.57	1%	1.32	A
Women	32.2	5.169			5%	1.72	A

Table 5.2.1.4 shows means, SDs and 't'-value for the achievement score of men and women of group B taught through PT. The Calculated value of 't'-test (0.57) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significance between the means of achievement score of neo-literate men and women of group B taught through PT. The mean of the achievement score of men (33.55) is slightly greater than the mean of the achievement score of women (32.20) of group B.

Hypothesis No. 2.1.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.1.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT

Women	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	22.6	2.53	19	4.82	1%	1.33	R
group B	32.2	5.69			5%	1.73	R

Table 5.2.1.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-

test (4.82) is greater than the tabulated value i.e. 1.33 and 1.73 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (32.2) is greater than the mean of the achievement score of neo-literate women of group A (22.6).

Hypothesis No. 2.1.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.1.6

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	21.82	2.43	19	6.90	1%	1.32	R
group B	33.55	5.10			5%	1.72	R

Table 5.2.1.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT) respectively. The calculated value of 't'-test (6.90) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (33.55) is greater than the mean of the achievement score of neo-literate men of group A (21.82).

Unit-2 : Sources of Water

The researcher formulated sub-objective of Unit No. 2 'Sources of Water' in the area of 'Water' which is as follows"

Sub-Objective No. 2

"To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Sources of Water' taught through Simple Text (ST) and Programmed Text (PT)".

The researcher formulated seven corresponding null-hypotheses of this objective which are as follows :-

Hypothesis No. 2.2.0

"There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.2.0

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	26.14	5.15	40	4.7	1%	1.28	R
group B	33.76	5.19			5%	1.64	R

Table 5.2.2.0 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (4.7) is greater than the tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A and group B taught through ST and PT. The mean of the

achievement score of neo-literate men and women of group B (33.76) is greater than men and women of group A (26.14).

Hypothesis No. 2.2.1

"There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.2.1

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Women)	26.2	5.17			1%	1.32	R
			19	3.60			
group B (Men)	34.45	5.33			5%	1.72	R

Table 5.2.2.1 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT respectively. The calculated value of 't'-test (3.60) is greater than tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and men of group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (34.45) is greater than women of group A (26.2).

Hypothesis No. 2.2.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.2.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Men)	26.09	5.14			1%	1.32	R
			19	3.15			
group B (Women)	33	4.90			5%	1.72	R

Table 5.2.2.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (3.15) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (33) is greater than men of group A i.e. (26.09).

Hypothesis No.2.2.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)".

Table 5.2.2.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A Men	26.09	5.14			1%	1.32	A
			19	0.05			
Women	26.20	4.97			5%	1.72	A

Table 5.2.2.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST. The calculated value of 't'-test (0.05) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group A taught through ST. The mean of the achievement score of neo-literate men (26.09) is almost equal to mean of the achievement score of neo-literate women (26.09) of group A.

Hypothesis No. 2.2.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through the Programmed Text (PT)".

Table 5.2.2.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT

<i>group B</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	34.45	5.97	19	0.61	1%	1.32	A
Women	33	4.81			5%	1.72	A

Table 5.2.2.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT. The calculated value of 't'-test (0.61) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group B taught through PT. The mean of the achievement score of neo-literate (34.45) is slightly greater than women (33) of group B.

Hypothesis No. 2.2.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.2.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	26.20	5.17	18	3.02	1%	1.33	R
group B	33	4.90			5%	1.73	R

Table 5.2.2.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (3.02) is greater than tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (33) is greater than the mean achievement score of women of group A (26.20).

Hypothesis No. 2.2.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.2.6

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	26.09	5.14	20	3.7	1%	1.32	R
group B	34.45	5.33			5%	1.72	R

Table 5.2.2.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (3.70) is greater than tabulated value i.e. 1.32 and 1.72 for 20 degrees of freedom 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (34.45) is greater than group A (26.09).

Unit-3 : Water and House-Hold Activities

The researcher formulated sub-objective of Unit No. 3 'Water and House-Hold Activities' in the area of 'Water' which is as follows :

Sub-Objective No. 3

"To ascertain the effectiveness of developed post-literacy material for neo-literates in 'Water and House-Hold Activities' taught through Simple Text and Programmed Text".

Hypothesis No.2.3.0

"There will be no significant difference between the achievement of neo-literates of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.3.0

Means, SDs and 't'-value for the achievement score of neo-literates of group A and group B taught through ST and PT

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>H</i>	<i>o</i>
group A	25.14	4.00	40	5.66	1%	1.28	R	
group B	33.23	5.18			5%	1.64	R	

Table 5.2.3.0 shows means, SDs and 't'-value for the achievement score of neo-literate of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (5.66) is greater than the tabulated value i.e. 1.28 and 1.64 for 40

degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A and men and women of group B taught through ST and PT. The mean of the achievement score of the neo-literates of group B (33.23) is greater than the mean of the achievement score of neo-literates of group A (25.14).

Hypothesis No. 2.3.1

"There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.3.1
Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Women)	25.4	12.56			1%	1.32	R
group B (Men)	32.36	4.35	19	3.86	5%	1.72	R

Table 5.2.3.1 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT respectively. The calculated value of 't'-test (3.86) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and men of group B taught through ST and PT. The mean of the achievement score of neo-literate men (32.36) of group B is greater than the mean of the achievement score of neo-literate women (25.4) of group A.

Hypothesis No. 2.3.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.3.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Men)	24.90	3.72			1%	1.32	R
			19	4.28			
group B (Women)	34.20	5.90			5%	1.72	R

Table 5.2.3.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (4.28) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of neo-literate women (34.20) of group B is greater than the mean of the achievement score of neo-literate men of group A (24.90).

Hypothesis No. 2.3.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)".

Table 5.2.3.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text

<i>group A</i>	<i>Means</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	24.90	3.72	19	0.29	1%	1.32	A
Women	25.40	12.56			5%	1.72	A

Table 5.2.3.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text (ST). The calculated value of 't'-test (0.29) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group A taught through ST. The mean of the achievement score of neo-literate women (25.40) of group A is greater than the mean of the achievement score of neo-literate men (24.90) of group A.

Hypothesis No. 2.3.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programmed Text (PT)".

Table 5.2.3.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text

<i>group B</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	32.36	4.35	19	0.80	1%	1.32	A
Women	34.2	5.9			5%	1.72	A

Table 5.2.3.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text. The calculated value of 't'-test (0.80) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group B taught through Programmed Text. The mean of the achievement score of neo-literate women (34.2) is greater than the mean of the achievement score of neo-literate men (32.36) of group B.

Hypothesis No. 2.3.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.3.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and B taught through ST and PT

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	25.4	12.56			1%	1.33	R
			18	3.94			
group B	34.2	5.90			5%	1.73	R

Table 5.2.3.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (3.94) is greater than the tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. The means of the achievement score of neo-literate women of group B (34.2) is greater than the mean of the achievement score of neo-literate women of group A (25.4).

Hypothesis No. 2.3.6

“There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)”.

Table 5.2.3.6

Means, SDs and ‘t’-value for the achievement score of neo-literate men of group A and group B taught through Programmed Text

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	24.90	3.72	19	4.33	1%	1.33	R
group B	32.36	4.35			5%	1.73	R

Table 5.2.3.6 shows means, SDs and ‘t’-value for the achievement score of neo-literate men of group A and group B taught through Programmed Text. The calculated value of ‘t’-test (4.33) is greater than the tabulated value i.e. 1.33 and 1.73 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and group B taught through ST and PT respectively. The mean of the achievement score of neo-literate men of group B (32.36) is greater than the mean of the achievement score of neo-literate men of group A (24.90).

Unit-4 : Proper Drainage System*Sub-Objective No. 4*

The research formulated sub-objective of Unit No. 4 ‘Proper Drainage System’ in the area of ‘Water’ which is as follows :-

“To ascertain the effectiveness of post-literacy material for neo-literate in ‘Proper Drainage System’ taught through Simple Text and Programmed Text”.

The researcher formulated seven null-hypothesis of this objective which are as follows :

"There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.4.0

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT

Men and Women	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	25.14	4.32	40	4.4	1%	1.28	R
group B	23.14	7.05			5%	1.64	R

Table 5.2.4.0 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (4.4) is greater than the tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A and group B taught through ST and PT respectively. The mean of the achievement score of neo-literate men and women of group A (25.14) is greater than the mean of the achievement score of neo-literate men and women of group B (23.14).

Hypothesis No. 2.4.1

"There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.4.1

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Women)	25.10	4.06	19	3.32	1%	1.32	R
group B (Men)	33.72	7.41			5%	1.72	R

Table 5.2.4.1 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT respectively. The calculated value of 't'-test (3.32) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and men of group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (33.72) is greater than the mean of the achievement score of neo-literate women of group A (25.10).

Hypothesis No. 2.4.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.4.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Men)	25.27	4.54	19	2.8	1%	1.32	R
group B (Women)	32.50	6.64			5%	1.72	R

Table 5.2.4.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (2.8) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (32.50) is greater than the mean of the achievement score of neo-literate men of group A (25.27).

Hypothesis No. 2.4.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)".

Table 5.2.4.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST

<i>Group A</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	25.27	4.54	19	0.09	1%	1.32	A
Women	25.10	4.06			5%	1.72	A

Table 2.4.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST. The calculated value of 't'-test (0.09) is less than the tabulated value i.e. 13.2 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group A taught through ST. The mean of the achievement score of neo-literate men (25.27) is nearly equal the mean of the achievement score of neo-literate women (25.10) of group A.

Hypothesis No. 2.4.4 :

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Programmed Text (ST)".

Table 5.2.4.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT

<i>Group B</i>	<i>Mean</i>	<i>S.D.</i>	<i>df</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	33.72	7.41	19	0.39	1%	21.32	A
Women	32.50	6.64			5%	1.72	A

Table 5.2.4.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT. The calculated value of 't'-test (0.39) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group B taught through PT. The mean of the achievement score of neo-literate men (33.72) is slightly greater than the mean of the achievement score of neo-literate (32.5) of group B.

Hypothesis No. 2.4.5

"There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.4.5

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A group B taught through ST and PT

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>df</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Group A	25.10	4.06	18	3.12	1%	1.33	R
Group B	32.50	6.64			5%	1.73	R

Table 5.2.4.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (3.12) is greater than the tabulated value i.e. 1.33 and 1.73 for

18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and group B. The mean of the achievement score of women of group B (32.50) is greater than the mean of the achievement score of neo-literate women of group A (25.10).

Hypothesis No. 2.4.6

“There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)”.

Table 5.2.4.6

Means, SDs and ‘t’-value for the achievement score of neo-literate men and women of group A taught through ST and PT

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Group A	25.27	4.54	20	3.23	1%	1.32	R
Group B	33.72	7.41			5%	1.72	R

Table 5.2.4.6 shows means, SDs and ‘t’-value for the achievement score of neo-literate men of group A and group B taught through ST and PT respectively. The calculated value of ‘t’-test (3.23) is greater than the tabulated value i.e. 1.32 and 1.72 for 20 degrees of freedom at 1 per cent and 5 per cent levels of significance. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (33.72) is greater than the mean of the achievement score of neo-literate men of group A (25.27).

Unit-5 : Hardness of Water

The researcher formulated sub-objective of Unit No. 5 ‘Hardness of Water’ in the area of ‘Water’ which is as follows :

Sub-Objective No. 5

"To ascertain the effectiveness of developed post literacy material in 'Hardness of Water' taught through Simple Text (ST) and Programmed Text (PT)".

Hypothesis No. 2.5.0

The researcher formulated seven corresponding null hypotheses which are as follows :

"There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT).

Table 5.2.5.0

Mean, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	26.80	4.48	40	1.89	1%	1.28	R
group B	32.42	6.49			5%	1.64	R

Table 5.2.5.0 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (1.89) is greater than the tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. There is a significant difference between the means of achievement score of neo-literate men and women of group A and group B taught through ST and PT. The means of the achievement score of neo-literate men and women of group B (32.42) is greater than the mean of the achievement score of neo-literate men and women of group A (26.80).

Hypothesis No. 2.5.1

"There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.5.1

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Women)	26.60	3.71	19	2.56	1%	1.32	R
group B (Men)	32.54	6.60			5%	1.72	R

Table 5.2.5.1 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT respectively. The calculated value of 't'-test (2.56) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and men of group B taught through ST and PT. The mean achievement score of neo-literate men of group B (32.54) is greater than the mean of the achievement score of women of group A (26.60).

Hypothesis 2.5.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)."

Table 5.2.5.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Men)	27	3.97			1%	1.32	R
			19	2.38			
group B (Women)	32.3	5.94			5%	1.72	R

Table 5.2.5.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (2.38) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (32.3) is greater than the mean of the achievement score of neo-literate men of group A (27).

Hypothesis 2.5.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST).

Table 5.2.5.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST

<i>group A</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	27	3.97			1%	1.32	A
			19	0.24			
Women	26.6	3.71			5%	1.72	A

Table 5.2.5.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST. The calculated value of 't'-test (0.24) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group A taught through ST. The mean of the achievement score of neo-literate men (27) is slightly greater than the mean of the neo-literate women (26.6) of group A.

Hypothesis No. 2.5.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programmed Text (PT).

Table 5.2.5.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text PT

<i>group B</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	32.54	6.6	19	0.08	1%	1.32	A
Women	32.3	3.53			5%	1.72	A

Table 5.2.5.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT. The calculated value of 't'-test (0.08) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of men (32.54) is nearly equal to the mean of the achievement score of women (32.3) of group B.

Hypothesis No. 2.5.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.5.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	26.6	3.71	18	2.56	1%	1.33	R
group B	32.3	5.95			5%	1.73	R

Table 5.2.5.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test is greater than the tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (32.30) is greater than the mean of the achievement score of women of group A (26.6).

Hypothesis No. 2.5.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.5.6

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	27	3.97	20	2.37	1%	1.32	R
group B	32.54	6.6			5%	1.72	R

Table 5.2.5.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT respectively. The calculated value of 't'-

test (2.37) is greater than the tabulated value i.e. 1.32 and 1.72 for 20 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance respectively. There is significance difference between the means of achievement score of neo-literate men of group A group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (32.54) is greater than men of group A (27).

Unit-6 : Water Pollution

The researcher formulated sub-objective of Unit No.6 'Water Pollution' in the area of 'Water' which is as follows :

Sub-Objective No.6

"To ascertain the effectiveness of development post-literacy material for neo-literates in 'Water Pollution' taught through Simple Text (ST) and Programmed Text (PT)".

Hypothesis No. 2.6.0

The researcher formulated seven corresponding null-hypotheses which are as follows :

"There will be no significant difference between the achievement of neo-literates of group A and group B taught through Simple Text (ST) Programmed Text (PT)".

Table 5.2.6.0

Means, SDs and 't'-value for the achievement score of neo-literates of group A and group B taught through ST and PT

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	22.8	3.49	40	5.89	1%	1.28	R
group B	32.52	6.76			5%	1.64	R

Table 5.2.6.0 shows means, SDs and 't'-value for the achievement score of neo-literates of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (5.89) is greater than the tabulated value i.e. 1.28 and 1.64 for degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. It indicates that there is a significant difference between the means of achievement score of neo-literates of group A and group B. The mean of the achievement score of neo-literates of group B is greater than the mean of the achievement score of neo-literates of groups A.

Hypothesis No. 2.6.1

"There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.6.1

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT

	Mean	S.D.	d.f	t-value	L.S.	T.V.	Ho
group A							
(Women)	23.90	3.67			1%	1.32	R
			19	3.72			
group B	33.36	7.51			5%	1.72	R
(Men)							

Table 5.2.6.1 indicates means, SDs and 't'-value for the achievement score of neo-literate women of group A and neo-literate men of group B taught through ST and PT respectively. The calculated value of 't'-test (3.72) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and neo-literate

men of group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (33.36) is greater than the mean of the achievement score of neo-literate women of group A (23.90).

Hypothesis No. 2.6.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.6.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and neo-literate women of group B

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Men)	20.81	32.6			1%	1.32	R
			19	6.04			
group B (Women)	32.66	5.65			5%	1.72	R

Table 5.2.6.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (6.04) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the mean of group A and women of group B. The men of the achievement score of neo-literate women of group B (32.66) is greater than the mean of the achievement score of neo-literate men of group A (20.81).

Hypothesis No. 2.6.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)".

Table 5.2.6.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text (ST)

<i>group A</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	20.81	2.66	19	2.19	1%	1.32	R
Women	23.90	3.67			5%	1.72	R

Table 5.2.6.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST. The calculated value of t-test (2.19) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A taught through ST. The mean of the achievement score of neo-literate women (23.90) is greater than the mean of the achievement score of neo-literate men of group A (20.81).

Hypothesis No. 2.6.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programmed Text (PT)".

Table 5.2.6.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT

<i>group B</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	33.36	7.51	19	0.26	1%	1.32	A
Women	32.60	5.65			5%	1.72	A

Table 5.2.6.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT. The calculated value of 't'-test (0.26) is less than the

tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom 1 per cent and 5 per cent levels of significance respectively. The hypothesis is accepted at both the levels of significance. There is slight difference between the means of the achievement score of neo-literate men (33.36) and women (32.6) of group B. There is no significant difference between the means of achievement score of neo-literate men and women of group B taught through PT.

Hypothesis No. 2.6.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.6.5

Mean, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	23.90	3.67	18	4.08	1%	1.33	R
group B	32.60	5.65			5%	1.73	R

Table 5.2.6.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (4.08) is greater than the tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and group B taught through ST and PT. The mean of the achievement score of the neo-literate women of group B (32.60) is greater than the mean of the achievement score of neo-literate women of group A (23.90).

Hypothesis No. 2.6.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.6.6

Mean, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	20.81	2.66	20	5.23	1%	1.32	R
group B	33.36	7.15			5%	1.72	R

Table 5.2.6.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (5.23) is greater than the tabulated value i.e. 1.32 and 1.72 for 20 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement of neo-literate men of group A and B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (33.36) is greater than the mean of the achievement score of neo-literate men of group A (20.81).

Unit-7 : Water Borne Diseases

The researcher formulated sub-objective of Unit No.7 'Water Borne Diseases' in the area of 'Water' which is as follows :

Sub-Objective No. 7

"To ascertain the effectiveness of post-literacy material developed for neo-literates in 'Water Borne Diseases' taught through Simple Text (ST) and Programmed Text (PT)."

The researcher formulated seven corresponding null hypotheses of this objective which are as follows :

Hypothesis No. 2.7.0

"There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.7.0

Mean, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT

Men and Women	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	27.19	6.66	40	2.41	1%	1.28	R
group B	32.57	7.78			5%	1.64	R

Table 5.2.7.0 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (2.41) is greater than the tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men and women of group B (32.57) is greater than the mean of the achievement score of neo-literate men and women of group A (27.19).

Hypothesis No. 2.7.1

"There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.7.1

Mean, SDs and 't'-value for the achievement score of neo-literate women of group A and men group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Women)	28.50	7.52	19	1.73	1%	1.32	R
group B (Men)	34.27	7.76			5%	1.72	R

Table 5.2.7.1 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT respectively. The calculated value of 't'-test (1.73) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement of score of neo-literate women of group A and men of group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (34.27) is greater than the mean of the achievement score of neo-literate women of group A (28.50).

Hypothesis No. 2.7.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.7.2

Mean, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Men)	25.82	7.27	91	1.55	1%	1.32	R
group B (Women)	30.70	7.15			5%	1.72	A

The Table 5.2.7.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (1.55) is greater than the tabulated value 1.32 for 19 degrees of freedom at 1 per cent level of significance and the calculated value of 't'-test (1.55) is less than the tabulated value (1.72) for 19 degrees of freedom at 5 per cent level of significance. The null hypothesis is rejected at 1 per cent level of significance and

is accepted at 5 per cent level of significance. The means of achievement score of neo-literate men of group A and women of group B at 1 per cent level of significance but there is no significant difference between the achievement of neo-literate men of group A and women of group B at 5 per cent level of significance taught through ST and PT. The mean of the achievement score of neo-literate women of group B (30.70) is greater than the mean of the achievement score of neo-literate men of group A (25.82).

Hypothesis No. 2.7.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)".

Table 5.2.7.3

Mean, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST

<i>group A</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	25.82	7.15	19	1.73	1%	1.32	A
Women	28.50	7.52			5%	1.72	A

Table 5.2.7.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST. The calculated value of 't'-test (0.83) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group A taught through ST. The mean of the achievement score of neo-literate women (28.50) is greater than the mean of the achievement score of men (25.82) of group A.

Hypothesis No. 2.7.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programmed Text (PT)".

Table 5.2.7.4

Mean, SDs and 't'-value for the achievement score of neo-literate men and men and women of group A taught through PT

<i>group B</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	34.27	7.76	19	1.18	1%	1.32	A
Women	30.70	7.27			5%	1.72	A

Table 5.2.7.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT. The calculated value of 't'-test (1.18) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is accepted at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group B taught through neo-literate men (34.27) is greater than the mean of the achievement score of women (30.70) of group B.

Hypothesis No. 2.7.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.7.5

Mean, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	28.50	7.52	18	0.66	1%	1.33	A
group B	30.70	7.27			5%	1.72	A

Table 5.2.7.5 shows means, SDs and 't'-values for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (0.66) is less than the tabulated value i.e. 1.33 and 1.73 for

18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (30.70) is slightly greater than the mean of the achievement score of neo-literate women of group A (28.50).

Hypothesis No. 2.7.6

“There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed Text (PT)”.

Table 5.2.7.6

Mean, SDs and ‘t’-value for the achievement score of neo-literate men and men of group A and group B taught through ST and PT

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	25.82	7.15	20	2.66	1%	1.32	R
group B	34.27	7.76			5%	1.72	R

Table 5.2.7.6 shows means, SDs and ‘t’-values for the achievement score of men group A and group B taught through ST and PT respectively. The calculated value of ‘t’-test (2.66) is greater than the tabulated value i.e. 1.32 and 1.72 for 20 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (34.27) is greater than the mean of the achievement score of neo-literate men of group A (25.82).

Unit-8 : Methods of Purification of Water

The researcher formulated sub-objective of Unit-8 Methods of Purification of Water’ in the area of ‘Water’ which is as follows :

Sub Objective No. 8

“To ascertain the effectiveness of post-literacy material for neo-literates in ‘Methods of Purification of Water’ taught through Simple Text (ST) and Programmed Text (PT)”.

The researcher formulated seven corresponding null hypotheses of this objective which are as follows :

Hypothesis No. 2.8.0

“There will be no significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)”.

Table 5.2.8.0

Means, SDs and ‘t’-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	26.09	3.90	40	4.5	1%	1.28	R
group B	33.38	6.35			5%	1.64	R

Table 5.2.8.0 shows means, SDs and ‘t’-value for the achievement score of neo-literate men and women of group A group B taught through ST and PT respectively. The calculated value of ‘t’-test (4.5) is greater than the tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of the achievement score of neo-literate men and women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men and women of group B (33.38) is greater than the mean of the achievement score of neo-literate men and women of group A (26.09).

Hypothesis No. 2.8.1

“There will be no significant difference between the achievement of neo-literate women of group A and men of group B taught through Simple Text (ST) and Programmed Text (PT)”.

Table 5.2.8.1

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through ST and PT

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Women)	25	3.68	19	3.92	1%	1.32	R
group B (Men)	34.45	4.45			5%	1.72	R

Table 5.2.8.1 shows Means, SDs and 't'-value for the achievement score of neo-literate women of group A and men of group B taught through PT and ST respectively. The tabulated value of 't'-test (3.92) is greater than the calculated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and Men of group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (34.45) is greater than the mean of the achievement score of neo-literate women of group A (25).

Hypothesis No. 2.8.2

"There will be no significant difference between the achievement of neo-literate men of group A and women group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.8.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT

	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A (Men)	27.09	3.93	19	2.95	1%	1.32	R
group B (Women)	33.20	5.40			5%	1.72	R

Table 5.2.8.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (2.95) is greater than the tabulated value 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is no significant difference between the means achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (33.20) is greater than the mean of the achievement score of neo-literate men of group A (27.09).

Hypothesis No. 2.8.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)".

Table 5.2.8.3

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through Simple Text (ST)

<i>group A</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	27.09	3.93	19	1.25	1%	1.32	A
Women	25	3.68			5%	1.72	A

Table 5.2.8.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST. The calculated value of 't'-test (1.25) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group A taught through ST. However, the mean of the achievement score of neo-literates men (27.09) is greater than the mean of the achievement score of neo-literate women (25) of group A.

Hypothesis No. 2.8.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programme Text (PT)".

Table 5.2.8.4

Means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT

<i>group B</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	34.45	7	19	3.92	1%	1.32	R
Women	25	3.68			5%	1.72	R

Table 5.2.8.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through Programmed Text (PT). The calculated value of 't'-test (3.92) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group B taught through PT. The mean of the achievement score of neo-literate men (34.45) is greater than women (25) of group B.

Hypothesis No. 2.8.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.8.5

Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT

<i>Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	25	3.68	18	3.98	1%	1.33	R
group B	33.2	5.40			5%	1.73	R

Table 5.2.8.5 shows mean, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (3.98) is greater than the tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score neo-literate women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (33.2) is greater than the mean of the achievement score of neo-literate women of group A (25).

Hypothesis No. 2.8.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) and Programmed (PT)".

Table 5.2.8.6

Means, SDs and 't'-value for the achievement score of neo-literate men group A and group B taught through ST and PT

Men	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	27.09	3.93	20	3.05	1%	1.32	R
group B	34.45	7			5%	1.72	R

Table 5.2.8.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (3.05) is greater than the tabulated value i.e. 1.32 and 1.72 for 20 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (34.45) is greater than group A (27.09).

Unit-9 : Storage of Water

The researcher formulated sub-objective of Unit No.9 'Storage of Water' in the area of water which is as follows :

Sub-Objective No.9

"To ascertain the effectiveness of developed post-literacy material for neo-literates in 'Storage of Water' taught through Simple Text and Programmed Text".

Hypothesis No. 2.9.0

"There will be no significant difference between the achievement of neo-literate men and women of group A and men and women of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.9.0

Means, SDs and 't'-values for the achievement scope of neo-literate men and women of group A and B taught through ST and PT

<i>Men and Women</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	23.14	3.45	40	4.03	1%	1.28	R
group B	30.19	7.25			25%	1.64	R

Table 5.2.9.0 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (4.30) is greater than the tabulated value i.e. 1.28 and 1.64 for 40 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group A and group B taught through Simple Text (ST) and Programmed Text (PT). The mean of the achievement score of neo-literate men and women of group B (30.19) is greater than the mean of the achievement score of neo-literate men and women of group A (23.14).

Hypothesis No. 2.9.1

"There will be no significant difference between the achievement of neo-literate women of group A and neo-literate men of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.9.1

Means, SDs and 't'-values for the achievement score of neo-literate men group A and women of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Women)	23.00	3.77	19	0.76	1%	1.32	A
group B (Men)	25.18	8.62			5%	1.64	A

Table 5.2.9.1 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-test (0.76) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (25.18) is slightly greater than the mean of the achievement score of neo-literate women of group A (23.00).

Hypothesis No. 2.9.2

"There will be no significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text (ST) and Programmed Text (PT)".

Table 5.2.9.2

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT

	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A (Men)	23.27	3.29	19	3.06	1%	1.32	R
group B (Women)	30.90	7.22			5%	1.72	R

Table 5.2.9.2 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and women of group B taught through ST and PT respectively. The calculated value of 't'-text (3.06) is greater than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant differences between the means of achievement score of neo-literate men of group A and women of group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (30.9) is greater than the mean of the achievement score of neo-literate men of group A (23.27).

Hypothesis No. 2.9.3

"There will be no significant difference between the achievement of neo-literate men and women of group A taught through Simple Text (ST)".

Table 5.2.9.3

Means, SDs and 't'-value for the achievement score of neo-literate men of group A taught through ST

<i>Group A</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
Men	23.27	3.27	19	0.17	1%	1.32	R
Women	23.00	3.77			5%	1.72	R

Table 5.2.9.3 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group A taught through ST. The calculated value of 't'-test (0.17) is less than the tabulated value i.e. 1.32 and 1.72 for 19 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men and women of group A taught through ST. The mean of the achievement score of neo-literate women (23.00) is nearly equal the mean of the achievement score of neo-literate men (23.27) of group A.

Hypothesis No. 2.9.4

"There will be no significant difference between the achievement of neo-literate men and women of group B taught through Programmed Text (PT)".

Table 5.2.9.4
Means, SDs and 't'-value for the achievement score of neo-literate men of group B taught through PT

Group B	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
Men	25.18	8.62	19	1.65	1%	1.32	A
Women	30.90	7.22			5%	1.72	A

Table 5.2.9.4 shows means, SDs and 't'-value for the achievement score of neo-literate men and women of group B taught through PT. The calculated value of 't'-test (1.65) is greater than the tabulated value (1.32) for 19 degrees of freedom at 1 per cent level of significance and calculated value of 't'-test (1.65) is less than the tabulated value (1.72) for 19 degrees of freedom at 5 per cent level of significance. The null-hypothesis is rejected at 1 per cent and is accepted at 5 per cent level of significance. There is a significant difference between the means of achievement score of neo-literate men and women of group B and no significant difference between the achievement of neo-literate men and women of group B taught through PT. The mean of the achievement score of neo-literate women (30.90) is greater than the mean of the achievement score of neo-literate men (25.18) of group B.

Hypothesis No. 2.9.5

"There will be no significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text (ST) Programmed Text (PT)".

Table 5.2.9.5
Means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT

Women	Mean	S.D.	d.f.	t-value	L.S.	T.V.	Ho
group A	23.00	3.77	18	3.07	1%	1.33	R
group B	30.90	7.22			5%	1.73	R

Table 5.2.9.5 shows means, SDs and 't'-value for the achievement score of neo-literate women of group A and group B taught through ST and PT respectively. The calculated value of 't'-test (3.07) is greater than the tabulated value i.e. 1.33 and 1.73 for 18 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is rejected at both the levels of significance. There is a significant difference between the means of achievement score of neo-literate women of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate women of group B (30.90) is greater than the mean of the achievement score of neo-literate women of group A (23.00).

Hypothesis No. 2.9.6

"There will be no significant difference between the achievement of neo-literate men of group A and group B taught through Simple Text (ST) Programmed Text (PT)".

Table 5.2.9.6

Means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT

<i>Men</i>	<i>Mean</i>	<i>S.D.</i>	<i>d.f.</i>	<i>t-value</i>	<i>L.S.</i>	<i>T.V.</i>	<i>Ho</i>
group A	23.27	3.27	20	0.69	1%	1.32	R
group B	25.18	8.62			5%	1.72	R

Table 5.2.9.6 shows means, SDs and 't'-value for the achievement score of neo-literate men of group A and group B taught through ST and PT. The calculated value of 't'-test (0.69) is less than the tabulated value i.e. 1.32 and 1.72 for 20 degrees of freedom at 1 per cent and 5 per cent levels of significance respectively. The null-hypothesis is accepted at both the levels of significance. There is no significant difference between the means of achievement score of neo-literate men of group A and group B taught through ST and PT. The mean of the achievement score of neo-literate men of group B (25.18) is slightly greater than the group A (23.27).

Chapter-6

INTERPRETATION OF DATA

This Chapter deals with the interpretation of the results obtained from the analysis of data. The researcher interpreted the analysed data pertaining to null hypotheses belonging to each objective. The objective No. One and two are concerned with the theoretical aspect of food and water in the field of environmental education.

FIRST OBJECTIVE

The first objective of the study was as follows :

“To develop the post-literacy material for neo-literates in the area of ‘Food’ through ‘Programmed Text’.

The researcher developed post-literacy material for neo-literates in the area of food through Programmed Text. The researcher divided the whole area of food into nine different units. Each unit covers five-units. The researcher developed a number of frames for the Programmed Text in these units based on different levels of instructional objectives. Benjamin Blooms (1960) classified the whole instructional objectives into three domains. Cognitive Domain; Affective Domain; and Psychomotor Domain. The researcher covered only four levels of cognitive domain in her research area of food into nine different units. These levels of instructional objectives are Knowledge level, Understanding level, Skill level and Application level. The researcher described here only theoretical aspects of different units of Programmed Text with their total number of frames as given in Appendix (7 to 24). The description of theoretical aspects of different units of Programmed Text with their total number of frames covered under first objective were as follows :

Unit No. 1*"Food and Health"*

The Unit No. 1 'Food and Health' explains that human body needs food to perform different tasks and food makes the body strong and provide energy. This unit covers the functions of food in human body in maintaining proper growth of different parts of body; essential nutrients of food; regular food practices and proper food habits; and the factors and conditions influencing the digestion due to irregular food practices. The total number of frames of Programmed Text developed under this unit are sixty eight as given in Appendix No. 7.

Unit No. 2*"Balanced Diet"*

The Unit No. 2 'Balanced Diet' of Programmed Text covers necessity of balanced diet for human body and its relationship to health; Knowledge about different animal dietary and plant dietary sources; the various foods that constitute the balanced diet; the functions of Carbohydrates, proteins, vitamins and fats; low cost balanced diet; the nutritional requirements of infants, children, adolescents and adults and variation of nutritional requirement according to sex, age and occupation. The total number of frames of Programmed Text developed under this unit are one hundred and ten as given in Appendix No. 8.

Unit No. 3*"Healthy Cooking"*

The Unit No. 3, 'Healthy Cooking' covers the resources of cooking food; precautions before cooking; different methods of cooking, i.e. boiling, frying and roasting; how to make healthy cooking in order to enhance the nutritive value of food, and skills of cooking economically in terms of money, time and energy. The total number of frames of Programmed Text developed under this Unit are forty as given in Appendix No. 9.

Unit No. 4*"Digestive System"*

The Unit No. 4 'Digestives System' covers different digestive organs, and their location in the body; the internal structure of different digestive organs; the role of digestive organs in human body; the failure of body organs creating diseases and the treatment of various diseases. The total number of frames of Programmed Text developed under this Unit are seventy two as given in Appendix No. 10.

Unit No. 5*"Mal-nutrition"*

The Unit No. 5 'Malnutrition' covers the meaning of malnutrition; the causes of malnutrition and the symptoms that appear in body due to malnutrition; the different forms of malnutrition; various diseases caused by malnutrition; and treatment of different diseases caused by malnutrition and the precautionary measures that are essential to keep the body away from malnutrition. The total number of frames of Programmed Text developed under this unit are twenty one as given in Appendix No. 11.

Unit No. 6*"Vitamins"*

The Unit No. 6 'Vitamins' covers the vitamins A, B, C, D, E and K the need and importance of various vitamins, various sources of vitamins, the symptoms of various diseases caused due to deficiencies of various vitamins, i.e. Berry Berry (due to deficiencies of Vitamins B), Scurvy (due to deficiency of Vitamin C), Pellagra (due to deficiencies of Vitamins B) and recharts (due to deficiencies of Vitamin D; the treatment of various diseases as well as prevention and the control of different diseases caused due to deficiencies of the Vitamins. The total number of frames of Programmed Text developed under this unit are thirty two as given in Appendix No. 12.

Unit No. 7*"Meal Planning"*

The Unit No. 7 covers the meaning of meal planning; necessity and factors that affecting meal planning; importance of meal planning in terms of money, time and energy, selection of the proper combination of vegetables and dals for daily meals; consideration of members, their age, sex, income of the home and weather conditions while making meal planning; variation of meal planning for lunch and dinner i.e. light food for dinner and heavy food for lunch; and meal planning for festivals according to the traditions and the customs. The total number of frames of Programmed Text developed under this unit are twenty five as given in Appendix No. 13.

Unit No. 8*"Special Diet"*

The Unit No. 8 'Special Diet' covers the necessity of special diet, variation of diets of healthy man and patient, the symptoms of different diseases like Cholera, Constipation, Malaria, Typhoid and small pox. The total number of frames of Programmed Text developed under this unit are one hundred as given in Appendix No. 14.

Unit No. 9*"Food Storage and Preservation"*

The Unit No. 9 'Food storage and Preservation' covers the different methods of food storage and preservation essential to keep uncooked food stuffs for a long time, the manner of keeping food for longer time; the specific type of management for preservation of fruits, the factors responsible for food spoilage; advantages of food storage and preservation and consumer's right regarding taking precautions while purchasing the commodities. The total number of frames of Programmed Text total number of frames of Programmed Text developed under this unit are thirty five as given in Appendix No. 15.

SECOND OBJECTIVE

The second objective of the study was as follows :

"To develop the post-literacy material for neo-literates in the area of 'Water' through Programmed Text."

The researcher developed post-literacy material for neo-literates in the area of water through Programmed Text. For obtaining the second objective, the researcher divided the whole area of water into nine different units. Each unit covers five sub-units. As the researcher described the different levels of instructional objectives for different frames of Programmed Text of nine units such as Knowledge level, Understanding level, Skill level and application level. The description of theoretical aspect of different units of Programmed Text with their total number of frames covered under the second objective were as follows :

Unit No. 1

"Drinking Water"

The Unit No. 1 covers the necessity of water for human body; properties of pure water; the forms of water i.e. solid, liquid and gas, difference between the pure and polluted water; various functions of water like regulating the body temperature and absorption of food etc. and proper drinking habits. The total number of frames of Programmed Text developed under this unit are twenty seven as given in Appendix No. 16.

Unit No. 2

"Sources of Water"

The various frames of the Unit No. 2 'Sources of Water' cover the different sources of water such as rain, surface-water and ground water; utility of water obtained from various sources of water, surface water such as water in ponds, lakes, rivers, streams, tanks and impounding reservoirs; ground water such as water in shallow wells, deep wells, and springs; the merits and demerits of various water sources due to which one can not use the water of such sources for drinking purposes; the various types of wells; use of electricity taking underground water and keeping the sources of water neat and clean. The total number of frames of Programmed Text developed under this Unit are forty five as given in Appendix No. 17.

Unit No. 3*"Water and House Hold Activities"*

The various frames of Programmed Text of the Unit No. 3 'Water and House Hold Activities' cover use of water for various purposes, the manner of using water for various purposes, care of using water, washing of anything within limited water, the treatments in washing the clothes of different varieties such as cotton, silk and woollen. The total number of frames of Programmed Text developed under this Unit are sixty six as given in Appendix No. 18.

Unit No. 4*"Proper Drainage System"*

The various frames of Programmed Text of Unit No. 4 'Proper Drainage System' cover the need of precautions for various causes for the advantages of proper drainage system and the rules for proper cleanliness of the surroundings. The total number of frames of Programmed Text developed under this Unit are twenty four as given in Appendix No. 19.

Unit No. 5*"Hardness of Water"*

The Unit No. 5 'Hardness of Water' covers the meaning of 'Hardness of Water' the difference between the heavy water and soft water, the types of hardness and the different methods of removal of hardness of water. The total number of frames of Programmed Text developed under this Unit are fourteen as given in Appendix No. 20.

Unit No. 6*"Water Pollution"*

The various frames of Programmed Text of Unit No. 6 'Water Pollution' cover the meaning of water pollution, the industrial wastes creating a lot of environmental problems; the effects of water pollution on health, taking precautions in order to make the water clean, and the effects of polluted water on the lives of human beings and on

plants. The total number of frames of Programmed Text developed under this Unit are twenty two as given in Appendix No. 21.

Unit No. 7

"Water Borne Diseases"

The various frames of Programmed Text of Unit No. 7, 'Water Borne Diseases' cover the various diseases caused by polluted water, like diarrhoea and other diseases related to digestion; the prevention and control of various diseases, and the treatments of various diseases. The total number of frames of Programmed Text developed under this Unit are twenty three as given in Appendix No. 22.

Unit No. 8

"Methods of Purification of Water"

The various frames of Programmed Text of Unit No. 8 'Methods of Purification of Water' cover the different methods of purification of water, i.e. boiling, filtration and chemical disinfection and use of those methods for various purposes. The total number of frames of Programmed Text developed under this Unit are twenty eight as given in Appendix No. 23.

Unit No. 9

"Storage of Water"

The various frames of Programmed Text of Unit No. 9 'Storage of Water' cover the need and importance of storage of water; the precautions of storage of water, advantage of storage of water; the precautions of storage of water, advantage of storage of water, disadvantage of storage of water for example creating various diseases in human body, and water supply in rural areas and in urban areas. The total number of frames of Programmed Text developed under this Unit are twenty four as given in Appendix No. 24.

THIRD OBJECTIVE

The third Objective of the study was as follows :

"To ascertain the effectiveness of the developed post-literacy material for neo-literates in the area of food taught through Programmed Text".

The researcher divided the research area of Food into nine units. To obtain the third objective, the researcher ascertained the effectiveness of post-literacy material of each unit in the area of food for neo-literates developed through Programmed Text. Therefore, the researcher further formulated sub-objectives and their corresponding null-hypotheses for each unit in the research area of food. The interpretation of analysed data based on these sub-objectives and their corresponding null-hypothesis is as follows :

Sub-Objective No. 1

The sub-objective of Unit No. 1 'Food and Health' was as follows :

"To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Food and Health' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 1.

- (I) "There was a significant difference between the achievement score of neo-literate men and Women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate Women of group A and Men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was a significant difference between the achievement of neo-literate women of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective No. 2

The sub-objective of Unit No. 2 'Balanced Diet' was as follows :

"To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Balanced Diet' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 2.

- (I) "There was a significant difference between the achievement of score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate men of group B and women of group A taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text at 1 per cent level of significance."
- (V) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text at 5 per cent level of significance."
- (VI) "There was no significant difference between the achievement score of neo-literate men and women group B taught through Programmed Text".
- (VII) "There was no significant difference between the achievement score of neo-literate women of group A group B taught through Simple Text and Programmed Text".
- (VIII) "There was no significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective No. 3

The sub-objective of Unit No. 3 was as follows :

"To ascertain the effectiveness of developed post-literacy material for neo-literates in 'Healthy Cooking' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 3.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was no significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VII) "There was a significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective. No. 4

The sub-objective of Unit No. 4 was as follows :

"To ascertain the effectiveness of developed post-literacy material for neo-literates in 'Digestive System' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 4.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and B taught through Simple Text and Programmed Text".

- (II) "There was no significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was a significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text at 1 per cent level of significance".
- (VI) "There was no significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text, at 5 per cent level of significance".
- (VII) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VIII) "There was no significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective No. 5

The sub-objective of Unit No. 5 'Mal-Nutrition' was as follows :

"To ascertain the effectiveness of the post-literacy material for neo-literate in 'Mal-Nutrition' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 5.

- (I) "There was a significant difference between the achievement of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".

- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was no significant difference between the achievement of score of neo-literate men and women of group B taught through Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VII) "There was a significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and programmed Text".

Sub-Objective of Unit No. 6

The sub-objective of Unit No. 6 'Vitamins' was as follows :

"To ascertain the effectiveness of developed post-literacy material for neo-literate in 'Vitamins' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 6.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text.

- (V) "There was a significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VII) "There was a significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective No. 7

The sub-objective of Unit No. 7 'Meal Planning' was as follows :

"To ascertain the effectiveness of the post-literacy material developed for neo-literates in 'Meal Planning' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 7.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was a significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was a significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".

- (VII) "There was a significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective No. 8

The sub-objective of Unit No. 8 'Special-Diet' was as follows :

"To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Special Diet' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 8.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was a significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was a significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective No. 9

The sub-objective of Unit No. 9 was as follows :

"To ascertain the effectiveness of post-literacy material for neo-literates in 'Food Storage and Preservation' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 9.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was no significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VII) "There was a significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

FOURTH OBJECTIVE

The fourth objective of the study was as follows :

"To ascertain the effectiveness of the developed post-literacy material for neo-literates in the area of 'Water' taught through Simple Text and Programmed Text".

The researcher divided the area of 'Water' into nine different units. To attain the objective No. Four, the researcher ascertained the effectiveness of post-literacy material of each unit in the area of Water for neo-literates developed through the Programmed Text. Therefore, the researcher further formulated sub-objective and their corresponding null hypotheses for each unit in the area of "Water". The interpretative of analysed data based on these sub-objectives and their corresponding null hypotheses is as follows :

Sub-Objective No. 1

The sub-objective of Unit No. 1 'Drinking Water' was as follows :

"To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Drinking Water' taught through Simple Text and Programmed Text".

It was found after analysis of data to sub-objective No. 1.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was no significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VII) "There was a significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective No. 2

The sub-objective of Unit No. 2 'Sources of Water' was as follows :

"To ascertain the effectiveness of the developed post-literacy material for neo-literates in 'Source of Water' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 2.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was no significant difference between the achievement score of neo-literate men and women of group B taught through the Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VII) "There was a significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective No. 3

The sub-objective of Unit No. 'Water and House Hold Activities' was as follows :

"To ascertain the effectiveness of developed post literacy material for neo-literates in 'Water and House Hold Activities' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to objective No. 3.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".

- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was no significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VII) "There was a significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective No. 4

The sub-objective of Unit No. 4 'Proper Drainage System' was as follows :

"To ascertain the effectiveness of post-literacy material for neo-literates in 'Proper Drainage System' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to objective No. 4.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".

- (V) "There was no significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VII) "There was a significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

Sub-objective No. 5

The sub-objective of Unit No. 5 'Hardness of Water' was as follows :

"To ascertain the effectiveness of development post-literacy material in 'Hardness of Water' taught through Simple Text Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 5.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was no significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".

- (VII) "There was a significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective No. 6

The sub-objective of Unit No. 6 'Water Pollution' was as follows :

"To ascertain the effectiveness of developed post-literacy Material for neo-literates in 'Water Pollution' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 6.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was a significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was no significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VII) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective No. 7

The sub-objective of Unit No. 7 'Water Borne Diseases' was as follows :

"To ascertain the effectiveness of developed post-literacy material for neo-literate in 'Water Borne Diseases' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 7.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was no significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text, at 1 per cent level of significance".
- (IV) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text at 5 per cent levels of significance".
- (V) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (VI) "There was no significant difference between the achievement score of neo-literate men and women of group B taught through programmed Text".
- (VII) "There was no significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VIII) "There was a significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective 8

The sub-objective of Unit No. 8 'Methods of Purification of Water' was as follows :

"To ascertain the effectiveness of developed post-literacy material for neo-literates in 'Methods of Purification of Water' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 8.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".
- (II) "There was a significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was a significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text".
- (VI) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VII) "There was a significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text and Programmed Text".

Sub-Objective No. 9

The sub-objective of Unit No. 9 'Storage of Water' was as follows :

"To ascertain the effectiveness of developed post-literacy material for neo-literates in 'Storage of Water' taught through Simple Text and Programmed Text".

It was found after analysis of data pertaining to sub-objective No. 9.

- (I) "There was a significant difference between the achievement score of neo-literate men and women of group A and group B taught through Simple Text and Programmed Text".

- (II) "There was no significant difference between the achievement score of neo-literate women of group A and men of group B taught through Simple Text and Programmed Text".
- (III) "There was a significant difference between the achievement score of neo-literate men of group A and women of group B taught through Simple Text and Programmed Text".
- (IV) "There was no significant difference between the achievement score of neo-literate men and women of group A taught through Simple Text".
- (V) "There was a significant difference between the achievement score of neo-literate men and women of group A taught through Programmed Text, at 1 per cent level of significance".
- (VI) "There was no significant difference between the achievement score of neo-literate men and women of group B taught through Programmed Text at 5 per cent level of significance".
- (VII) "There was a significant difference between the achievement score of neo-literate women of group A and group B taught through Simple Text and Programmed Text".
- (VIII) "There was no significant difference between the achievement score of neo-literate men of group A and group B taught through Simple Text Programmed Text".

Chapter-7

CONCLUSIONS AND SUGGESTIONS

CONCLUSIONS OF THE STUDY

After making an analysis and interpretation of the data, conclusions have been drawn by the researcher for each unit of both the research areas 'Food' and 'Water'. As seven groups were formed for analysis of data, the conclusions of each group of each unit of both the research areas 'Food' and 'Water' may be described as follows :

When Neo-Literates of Group A were Compared with Neo-Literates of Group B

The mean of the group B was found greater than the group A for each unit of both the research areas 'Food' and 'Water'. It shows that they learn more when were taught through programmed text their full involvement in learning process was found. It was also concluded that learning through programmed text is easier than simple text.

Thus, findings of the study clearly showed the effectiveness of the programmed text developed by the researcher for neo-literates.

7.2 When Neo-Literates Women of Group A were Compared with Neo-Literate Men of Group B

Mean achievement score of neo-literate women of Unit 1 of research area 'Food' was found greater than mean achievement score of neo-literate men of Unit 1 of the same research area.

As it was the first unit (Food and Health) of research area 'Food', the neo-literate women could not understand the pattern to follow the process clearly. Thus, the learning through programmed

text requires practice. It means when the learner gets more opportunities of passing through the process, learning through programmed text becomes easy for them. Therefore, clarification of the steps of the programme learning is essential for the learners as to get success in the process.

The means of the achievement scores of neo-literate men of group B of units—2, 3, 4, 5, 6, 7, 8, 9, of research area 'Food' were found greater than mean achievement score of neo-literate women of group A.

The mean achievement scores of neo-literate men of group B was also found greater than the neo-literate women of group A for the units 1 to 9 of the research area 'Water'.

Therefore, the Programmed text of both the research areas 'Food' and 'Water' was found effective to learn the concept of related research areas.

When Neo-Literate Men of Group A were Compared with Neo-Literate Women of Group B

The means of achievement scores of neo-literate women of group B was found greater than the neo-literate men of group A. This result was obtained from all the units of research areas 'Food' and 'Water'.

It indicates that the neo-literate women learn more through text than the neo-literate men of group A, through Programmed text was found more effective than Simple text.

When Neo-Literate Men of Group A were Compared with Neo-Literate Women of Group A

When neo-literate men of group A was compared with neo-literate women of the same group, keeping simple text as a constant variable. In this case on one side the mean of the achievement scores of the neo-literate women of the same group for Unit Nos. 3, 6, 7, 9, of research area 'Food' and Unit Nos. 4, 5, 8, 9 of research area 'Water'. On the other side the mean of the achievement scores of Unit Nos. 1, 2, 4, 5, 8 of research area 'Food' and Unit Nos. 1, 2, 3, 6, 7 of research area 'Water' were found greater for neo-literate women than the mean achievement scores of neo-literate men.

When Neo-Literate Men of Group B were Compared with Neo-Literate Women of Group B

When group B was compared gender wise, keeping programmed text as a constant variables, the mean achievement scores of Unit Nos. 1, 2, 3, 4 of research area 'Food' and Unit Nos. 3, 9 of research area 'Water' were found greater for neo-literate women of group B than the mean achievement scores of neo-literate men of the group B.

For other Units i.e. for Unit Nos. 5, 6, 7, 8, 9 of research area 'Food' and for Unit Nos. 1, 2, 4, 5, 6, 7, 8 of research men of group B, as their mean of achievement scores of neo-literate women of group B.

When Neo-Literate Women of Group A were Compared with Neo-Literate Men of Group B

The mean of the achievement scores of men of group B was found greater than neo-literate women of group A for all the Units of both research areas 'Food' and 'Water'.

It showed that learning through Programmed Text was found more effective than learning through Simple Text for neo-literate women.

When Neo-Literate Men of Group A were Compared with Neo-Literate Men of Group B

The mean of the achievement scores of neo-literate men of group B was greater than neo-literate men of group A. This result was found for all the Units of both the research area 'Food' and 'Water'. Therefore, it was concluded that when neo-literate men were taught through programmed text they achieved greater than the neo-literate women of group B. Thus, learning through Programmed Text was found more effective than the learning through Simple Text.

IMPLICATIONS

It is of great importance that at this time, when the world is reflecting more and more upon man environment interaction, we all remind ourselves that the total life of an individual, his behaviour

patterns, decisions and well-being effect and are affected by the environment within which he lives and interacts. The role of adult education in this task cannot be over-emphasised. Efforts geared towards that end should, therefore, be considered in all modern day adult education programmes. It is only the education through which we can develop in an individual certain attitudes, skills and knowledge that will enable him to interact successfully and live in harmony with the forces and elements that surround him and sustain his life. The need of the day is to make individuals realize their capabilities and improve upon capabilities to help solve the problems of the environment, thus, with the creation of awareness and realization of capabilities in the populace, individual would be in a better position to act in more appropriate ways to protect the environment.

In order to acquaint the adult learners with the knowledge of environment suitable well organised curriculum interested to learners is required. The present study is a humble attempt in this direction. Analysis, interpretation and conclusions of the present study clearly showed that introduction of new teaching-learning techniques in educational process in the form of programmed text helped the learners to perform better in related field changes bring novelty in the programme as well as help us to improve the programme. This study contributes new teaching-learning technique in the form of programmed instruction to the fun of knowledge. This text will help to produce talent and calibre in adult learners who will be 'environmentally literate citizenry in future. Such sustained efforts should be made to improve the coverage of adult education programme.

SUGGESTIONS

Human Population today is at exponential phase of its growth resulting in a phenomenal increase of human beings and limited sources at its command has created a situation which threatens the existence of man himself. The realization of this fact has led proper to put all their efforts to control the population growth. Alongwith this it has also been essential to bring under control the deteriorations of the environment caused due to unwise use of the resources. But for solving this problem it is essential that general masses be apprised of the problems and only through them some fruitful result could be obtained. India having a large population and limited resources has

a great proportion of illiterate persons. It is all the more difficult to impart education to such population about the problems of environment. It is also essential that a general awareness is generated amongst masses so that the environment is treated well and not allowed to get further deteriorated. The protection of environment is a matter of national concern. It is reflected in the Directive Principles of State Policy of our constitution also. We will have to transform man from a destroyer of the environment into a protector of the environment.

Although we have made progress to improve the environment, still there is a scope for improvement. The problem of increased developmental activities manifested itself through major environmental problems on a large scale in India. This led to comprehensive legislation at the national level to control environmental problems, and has ultimately resulted in the formation of a Department of Environment at the national level. Various functional departments of the Union Government have initiated action to have advisory committees on environment. At the state level, committees have been constituted to advise on specific matters concerning environmental protection. Expert committees are appointed to assess the unfavourable impact on the environment, and suggest measures to minimize the damage. In this direction, researchers in different aspects have been carried out in various departments of Universities and colleges and research centre. In India resources are limited, while opportunities for research in environment are many. Hence, it would be wise to manage all our resources to maximise the benefits from them.

It is also well known that to achieve a pleasing environment, the concerned efforts of academic institutions, professional societies, government agencies, N.G.Os. private industries and the public are necessary. Thus Universities could play a major role in providing facilities for identifying and defying research-oriented problems in this important area.

Post-literacy programme is a training programme which helps for the development of communities. In the process of its implementations it must increase not only the technical capacity neo-literates, but also their openness to innovation. Neo-literates are much more concerned with "How" than "Why". Thus it is essential

that needs and ulterior knowledge of neo-literates should be taken into consideration, while giving them a scientific training involving the participation of all neo-literates at all levels of action. As for the final objective of post-literacy programmes, apart from the various aspects that they may cover, as a type of training which is meant to respond to people's needs with their daily problems, functional literacy must extensionally contribute to the communities socio-economic transformation. It should improve the health conditions of the village members, encourage their participation in the organization, increase their income, in short improve the quality of their life.

The Paris Declaration of 1985 recordings literacy as a human right. It records that all illiterates must have "the right to learn, the right to read, the right to question and analyse, the right to imagine and create and the right to read one's world and to write history".

The post-literacy material should be well organised, well coordinated, properly researched which can retain the interest of neo-literates but also expand his understanding simultaneously. Material should be helpful to motivate the neo-literates continuously. Post-literary material should arouse in neo-literates an interest in reading and increase their awareness about the world outside. The words and sentences employed in post-literacy material must represent genuine communication and concrete thought reflecting learner's own home, his way of life and his surroundings.

Suggestions for Further Reseaches

Research findings of this study provides an insight for further researches. Following points may be taken into consideration for further researches.

1. Development of post-literacy material of Population Education for neo-literates on the basis of their educational needs, interests and aspirations in rural community.
2. A Study of Adult Education Programme.
3. Development of Programme Learning Material on Health Education.
4. A Comparative Study of Programmed Learning Material in Relation to Formal and Thematic Prompts on Population Education for Intermediate Classes.
5. A Comparative Study of Programmed Learning Material and Traditional Methods in the Teaching Language to Adult Learners.

6. A Comparative Study of Traditional Approval and Programmed Learning Material in the Teaching of Environmental Sciences for High School Classes.
7. A Study of Adult Learners Introducing Programmed Learning.
8. A Study of Evaluating student outcomes in Environmental Education Taught Through Programmed Text.
9. An Experimental Study of Teaching Learning Situation Through Programmed Text on Environmental Sciences for Junior Classes.
10. Development of Programmed Learning Material in Health Education and to Investigate into its Effectiveness.

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INDEX

A

Achievement of neo-literate men 102,
106, 128, 212
Achievement through instruction 56
Adult Education 3, 41
Adult education officer 91
Adult Education Programme 3, 5, 6,
9, 12, 14, 27, 42
Adult learners 76, 225
Affective Domain 195
Agra 92
Alexander, M. A. C. 27
Aligarh 41, 53
Alkhunaizi, M. M. 35
Amanullah, Khan 52
Anderson, R. D. 27
Andhra Pradesh 10
Application level 195, 199
Arias-Godinez, B. 26
Aspect of environmental education 77
Assam 9

II

Balanced Diet 203
Bandhu, D. 18
Bangladesh 60
Banglore 12
Basic principles of Programming 81-
82, 91
Bastia, K. C. 42
Berglund, G. W. 38
Berry Berry 197
Bihar 9, 10
Bio-physical environment 87
Blackwood, C. C. 30
Blooms, Benjamin 195
Bordenkircher, T. G. 33
Bordia, Anil 13
Burma 12

C

Chang, J. C. 36
Characteristics of adult learners 76
Characteristics of neo-literate 76
Chauhan, S. S. 52
Cheng, H. W. 33
Cognitive Domain 195
Concept of Educational Technology
13
Congress 3
Control Group Design 96
Crist, R. L. 37
Curriculum development 25, 62
Curriculum theory 59

D

Degrees of freedom 151, 187
Department of Environment 223
Deshmukh, Durga Bai 4
Development of curriculum on
population education 58
Development of Scientific attitude 57
Difference between neo-literate men
and women 164, 186
Drinking water 210
Dutta S. C. 12

E

Educational objectives of the
curriculum 88
Effectiveness of Programmed Text 219
Environmental education 16, 16, 18,
62, 225
Environmental interaction 221
Environmentally literates Citizenry
222
Ernakulam district 10
Experimental study 225

F

- Field of environmental education 95
 Fishman, P. B. 34
 Fitzpatrick, A. A. 32
 Food and Health 126, 196, 202, 219
 Food Storage and Preservation 208
 Frederick, J. J. 27

G

- Garwal 44
 Gram Shiksha Mohim 5
 Gujarat 10, 62
 Gupta, O. N. 52
 Gupta, S. 43
 Gupta, V. P. 49

H

- Hake, B. J. 29
 Handron, D. S. 29
 Hardness of Water 200, 213
 Haryana 10
 Healthy cooking 110, 111, 196
 Hicks, B. V. 36
 Hill, P. M. 37
 Himachal Pradesh 10
 Hocklander, N. C. 31
 Hulteen C. 37
 Human population 222

I

- Illinois 37
 Impact of educational technology 81
 India 6, 35, 46, 223
 Instructional objectives 195
 Intrinsic programmed 38

J

- Jadhao, V. G. 50
 James, P. E. 39
 Jamieson, G. H. 38, 39
 Jana Shikshan Nilayam 73
 Jarial, G. S. 61
 Jenkins, J. A. 29
 Jones, J. M. 32

K

- Kabthiyal, K. C. 44
 Karnataka 10
 Kay, N. W. 37
 Kenya 35
 Kerala 10, 57
 Kerlinger 85, 95
 Knowledge level 195, 199
 Knowledge of environment 222
 Kothari Commission 6
 Kparevzua, B. A. 39
 Kumar, Jitendar 55
 Kumar, shruti 54
 Kuruvilla, R. 54
 Kyereme, S. S. 34

L

- Lakpah, M. U. 28
 Lal, Khan 53
 Leytham, G. W. H. 39
 Libby, D. J. P. 36
 Literature for adult education 80
 Littefield, S. P. 26
 Lue, Y. T. 39

M

- Madhya Pradesh 9, 10
 Mager, Robert 89
 Mghenda, W. M. 35
 Maharashtra 4
 Mal-Nutrition 121, 197, 205
 Malcom, knowles 76
 Mali, M. C. 41
 Mass adult literacy movement 5
 Mass functional Literacy Programme 6
 Mavi, N. S. 56
 Mayfielf, C. B. 26
 Meal Planning 207
 Mechner, Francis 13
 Meltan, Arthur 13
 Methods of Purification of water 184, 201, 215
 Mexico 26

Miller, Robert 89
 Mishra, A. 44
 Mohammad, Ali 41
 Moore, J. R. 30
 Murphy, C. P. 35
 Muttaqi, I. A. 60
 Myrick, J. A. 33

N

Nable, G. 38
 National Adult Education Programme 42
 National Book Trust 46, 47
 National Fundamental Education Center 4
 National Literacy Mission 9, 10, 73, 80, 92
 National Policy on education 13, 29, 73
 Neo-literates 17, 18, 19, 78, 80, 94, 97, 99, 114, 118, 123
 Neo-literates in Digestive System 204
 Neo-literate men and women 151, 203, 207, 220
 Netherland 29
 New teaching learning process 222
 Nigeria 39
 Non-formal education 49
 Non-verbal experimental group 61
 North Carolina State University 32
 Null Hypotheses 99, 100, 104, 105, 107, 111, 119, 125, 137, 151, 195

O

Orissa 9, 10, 42

P

Pai, S. G. 50, 60
 Paris Declaration 224
 Patel, O. B. 53
 Pena, M. M. 31
 Peterson, N. L. 32
 Philippines 12
 Pikas, A. 37

Population education 59
 Post-literacy material 21, 77, 80, 86, 87, 116, 121, 126, 163, 184, 198, 203, 207, 214, 224
 Post-literacy programme 11
 Pratoomsindh, W. 34
 Primary education 58
 Principles of androgogy 30
 Problems of environment 223
 Programmed instruction technique 52
 Programmed learning material 54, 55, 225
 Programmed Text 20, 21, 22, 89, 91, 96, 97, 99, 105, 108, 114, 118, 123, 127, 151, 195, 199, 214
 Proper Drainage System 163, 212
 Proportion of illiterate persons 222
 Psychomotor Domain 195
 Punjab 10

Q

Quackenbush, D. R. 40

R

Rafie, A. 39
 Rahim, A. 52
 Rajasthan 10
 Rajput, J. S. 50
 Ram Das, J. 61
 Rani, S. 41
 Rao, B. S. V. 42
 Rao, D. B. 45
 Ravindranath, M. J. 56
 Reddy, B. K. 46
 Reddy, G. L. 42
 Reddy, P. V. S. 46
 Research area 219, 220, 221
 Rich, R. Z. 33
 Rizvi, Rani Bano 56
 Roger, W. E. 34
 Role of adult education 222
 Role of hemisphericity 31
 Rural adult illiterate 44
 Rural Functional Literacy Programme

S

- Saharanpur 50
 Saudi Arabia 35
 Saxena, A. B. 50
 Schemata formation 27
 Sebastian, X. 48
 Selvaraj, M. S. 43
 Shah, A. 43
 Shah, J. C. 56
 Shahina, Anjum 51
 Sharma, R. C. 18
 Shitole, C. B. 54
 Shukla, G. B. 58
 Shukla, N. N. 59
 Shulman 85
 Siddiqi, W. A. 50
 Simple Text 105, 108, 111, 114, 120,
 123, 127, 139, 151, 184, 213
 Singh, Brajvir 57
 Singh, Rajender 45
 Skinner, B. F. 14, 81
 Special Diet 137, 196, 208
 Storage of water 201, 216
 Study of curriculum development 40
 Study of Indian Muslims 36
 Sundararaj, S. 58
 Suthar, K. S. 55

T

- Task analysis 90
 Teaching of Environmental Science
 225

- Techniques in educational process 222
 Textile curriculum model 39
 Thailand 12
 Thakore, R. 59
 Thorndike, E. L. 15
 Total Literacy campaigns 11, 74
 Traditional method of teaching 96
 Traditional way of teaching 55
 Trivedi, I. U. 55
 Tyler, E. C. 27

U

- Udbaidullah, M. 43
 Understanding level 195, 199
 Uppar, S. S. 58
 Uttar Pradesh 9, 10, 41, 44

V

- Vanaja, V. 45
 Villic, C. 44
 Vitamins 126, 197 206
 Vocational agriculture curriculum 39
 Vocational training 28

W

- Water and Hours Hold Activities 200,
 221
 Water Borne Diseases 201, 214
 Water Pollution 200, 214
 Wilkinson, B. 28
 Williams J. 40
 Women dropouts in adult education
 centre 45

(continued from first flap)

selection of research areas, identification of objectives, selection of content in the field of environmental education for neo-literates, description of objectives in behavioural terms, construction of test of entering behaviour and terminal behaviour. On the other hand second phase comprises of sample, tools, selection of experimental design, procedure of collections data, scoring and application of suitable statistical techniques for the sake of testing various hypotheses formulated under the different objectives of the present study.

Chapter fifth deals with the analysis of data. The data of the present study had been collected after administering the different tests on new-literates in two broad areas which are food and water. Each area had been divided into nine units. Each and every unit of these research areas had been analysed minutely with the help of suitable statistical techniques.

Chapter sixth deals with the interpretation of data which leads the researcher to justify the formulated objectives and finding out proper result of the study.

Chapter seventh clearly highlights the conclusions and suggestions which are helpful to the various educationists, psychologists, sociologists, researchers and the other persons who are having keen interest in the field of adult education programme, particularly for the study of neo-literates.

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